THE VEGETABLE GARDEN

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ILLUSTRATIONS, DESCRIPTIONS, AND CULTURE OF THE GARDEN VEGETABLES OF COLD AND TEMPERATE CLIMATES

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WITH AN ADDENDUM BY W. P. THOMSON

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PREFACE TO THIRD EDITION

DURING the years of the War, vegetable growing received a decided stimulus, and in preparing a new edition of "THE VEGETABLE GARDEN" it has been thought advisable to include the new material in the form of an Addendum, to which references will be found in the form of footnotes in the body of the work.

A list of the newer varieties of our well-known vegetables—Peas, Potatoes, Cabbage, etc., is given with notes on their cultivation.

Descriptions of some really distinct new vegetables, as the White Sunroot (Jerusalem Artichoke), Daw's Champion Rhubarb, etc., have been added. In the case of Onions, no mention was made in the earlier edition of the handsome bulbs that are now to be seen at vegetable exhibitions during the autumn. How to raise and grow these form the subject of one of the added paragraphs; while the various diseases that attack vegetables and their remedy have also been dealt with. These include the terrible scourge, the wart-disease of Potatoes. As it has been proved that some varieties of Potatoes are immune from wart disease when grown on infected soil, the names of the sorts that, after extended trial, can be depended on to remain immune have been given. The growing of winter Tomatoes has also received attention.

W. P. T.

PREFACE

MANY books on the cultivation of vegetables have been written, but "THE VEGETABLE GARDEN" is the first book in any language which classifies, describes, and illustrates these most important of all plants to the human race. No excuse is needed for "making English" such a book for the benefit, not only of our own horticulture, but also that of America, and of Australia and our other colonies, in which the plants herein described may be grown. It will enable us to realise the wonderful variety of light, pleasant, and excellent food now within our reach, and make many good vegetables more widely known.

Food Reform.

The relation of these plants to the movement towards food reform calls for a word at the present time. Leaving out of view any exclusive tendency of this kind, all agree that the greater use of the best vegetables in our food would be a gain. The reason why the more delicate vegetable foods are neglected is because the cooks of Europe have served an apprenticeship of a thousand years on the carcases of ox, pig, sheep, and we are meat-eaters because our fathers had little else to eat. The plains and hills of the cold north were dotted with wild grazing animals, as an English park is with deer, or a Western prairie with antelope, and men killed and cooked the only food they had. A few generations only have passed since our now commonest vegetables came from the Continent. We are adding to their number every day, and by the aid of cultivation we are winning back our way to a simpler, healthier food.

Better Markets Needed.

In London the chaotic struggle in Covent Garden tends to deprive us of the good qualities of the garden produce so well grown in the suburban fields. One simple way to improvement would be the adoption of district markets for local supplies. It is not necessary that permanent structures should be built: a wide road, or square, or

river embankment, would suffice. As wholesale dealings of this kind are usually done in the morning hours, it would be easy to make good use of open spaces for this purpose. Some of the useful little district markets of Paris are held in public squares and on the boulevards, and an hour after they are over, tents, stands, refuse, and all other signs of the market are swept away. Those who have their own gardens do not suffer from the ill-managed markets of our cities, but thousands have no remedy save through the improvements of our markets, the Paris markets being a model of what is best in that way.

Better Culture.

The "muddle" method of planting the food garden with fruit trees and bushes, and so cutting up the surface with walks, edgings, etc., that the object of the garden is frustrated, should be changed. We cannot grow vegetables well under trees, and in attempting to do so we destroy the roots of the trees, and is one cause of our poor garden-fruit culture. One-half of the space wholly given to vegetables, divested of walks, large hedges, old frame grounds, old walls, rubbish, and other impedimenta, would give a far better supply. It is not merely the ugliness and the loss of the over-mixed garden which we have to deplore, but the wasted labours of the men who have to look after such gardens. How are they to succeed, with the many things so hopelessly mixed up—and perhaps rank groves of elms or other trees, their roots robbing half the space? Put the fruit trees in one part—the higher ground, if any—and devote the remaining part to vegetables, cultivating the ground in the best way as a fertile garden. The vegetables, too, would be more wholesome for good light and air; for shade from ragged and profitless trees and bushes and hedges is one of the evils of this hopeless kind of garden. The broken crops, too (for the most part sickly patches), are not such as one can be proud of. The many excellent vegetables grown for the Paris market are grown in the full sun, and these gardens are a lesson in good culture, and the quantity grown in them in proportion to their size.

More Space for the Best.

It is the rule in most British gardens to give far too much space to the coarser vegetables like Cabbage and Potatoes, and far too little to the more delicate and nutritious kinds, some of which are usually not grown at all, or so ill grown as to be useless. The Greens and other vegetables that go with our joints are the coarsest, least nutritious, and

most indigestible of all, and there can be no full gain in a garden which does not include the vegetables which are served abroad as dishes by themselves, and indeed are quite worthy to stand alone. Leaving aside those not to be grown in our climate, we have among others Scorzonera, Salsafy, Lettuces, and Endives; with us there is great waste in not using Lettuces and Endive, and particularly the Batavian Endive, as vegetables; for good cookery they are far more important than Greens. Celeriac, an excellent vegetable, is rarely well grown with us. Cardoons are first-rate vegetables for our country, for which our soil and climate are well suited. Indian Corn, too, thrives in all the southern parts of the country, and, well grown, forms an excellent vegetable. Then there are Artichokes of the best varieties, edible-podded Runner Beans, edible-podded Dwarf Beans, early small Carrots, such as the French Early Horn, Witloof, Corn Salad, Potiron jaune, and Winter Gourds. The variety of delicious Gourds available during summer, and the keeping kinds through a great part of the winter, is a revelation to those who know nothing beyond the Vegetable Marrow.

Gather at the Best Stage.

For owners of gardens, big or little, there is waste through not gathering vegetables in the tender state. In almost every garden, in summer and autumn, one sees Kidney Beans and Peas in an uneatable state, useless themselves, and robbing the plant of the power to give a succession of eatable pods. All such crops should be gathered at the right time, whether wanted or not. Those who want vegetables in their best condition only would find it profitable to gather and give away rather than pursue the usual way of growing only to waste. It is a practice of market g rdeners to allow things to get old and hard before gathering, so as to fill their baskets. They must be the best judges of their own affairs, but this practice is the cause of market vegetables being often almost uneatable. In Paris the cook has the upper hand, and no grower dare send him the woody fibre which is so largely sent as vegetables to the London market. It is an error to suppose that those who grow their own fruits and vegetables must pay more for them than they would in the market. The gain in having them fresh would be worth paying for. The advantage which all who live in their gardens enjoy might be much increased by growing only things good in flavour, and gathering them in their best state for the table. But it needs very strong pressure on the part of

owners to have things sent in their tenderest and best condition for the table.

All who have gardens should fight against the deterioration of some of our best vegetables through the mania for size.

Quality before Size.

Although the flavour of vegetables may not be so obvious as of fruit, it is often their essential quality. A change in size, by adding to the watery tissue of the plant, may destroy the flavour, and doubling or trebling the size of the article itself, as has been done in the case of the Brussels Sprout, which is no longer the same little rosette of green, but a coarse Cabbage sprout. Bad, too, is the raising of new varieties lacking in flavour, and abolishing old kinds, from supposed deficiency in size. There has been, for example, for the last few years a French Bean in our markets, very large, but without any of the good flavour of the smaller kinds, but its huge mawkish pod has become popular with the market-gardener. Here is a delicate vegetable, the value of which depends entirely upon its flavour, and whether we get six beans or one bean matters little if the object of growing the vegetable is lost sight of. Sometimes a flavour may be too rich: many good cooks in London prefer the little long Turnip of the Paris market, which has a truer Turnip flavour, to some of the sweet kinds. We may lose much of what makes a garden worth having by not controlling the harmful efforts for size unaccompanied by other and more desirable qualities. Often Potatoes and Tomatoes and other things are raised and praised much, which in flavour are wholly inferior to the older kinds.

Loss and confusion arise from the practice now common among seedsmen of naming almost every good vegetable after themselves.

Confusion as to Name.

England has almost a monopoly of the practice, which is not carried out in France. Honourable houses may do it for self-protection with us, but it is nevertheless a loss to the public, and scarcely less so to the trade. To be able to secure pure stocks of long-tried standard vegetables is not easy for the public while the seedsman affixes a new name and the name of his house to almost everything he sells. One cause of failure is too many kinds—too many experimental plantings, instead of the garden being devoted to the things we know and like. This is a common error owing to the chaotic state of the names of vegetables.

Seedsmen and growers, at home, in our colonies, and in foreign countries, are compelled again and again to buy old things under new names, and to test them before embarking in their sale. If the practice were confined to the really new kinds raised, it would be fair. A common way of giving these new names is to secure a well-selected stock of seed of some old, good kind, and re-name it. Of late years we have seen in London, Orchid, Pear, and other conferences, which have had really little more serious *raison d'être* than the vanity or amusement of their promoters. The nomenclature of our most valuable garden crops might well occupy the attention of a body composed of representative seedsmen and growers. It would not be very difficult to seek out and give their true names to all the older and finer types of our vegetables, and prevent confusion in the future without interfering with the right to name a real novelty in a fitting way.

Improved Cookery of Vegetables and Cereals.

Even if we have all we desire in the way of good culture and varieties, there remains the question of cookery, which is sadly in need of change with us. In places of public resort where the best meat, game, and fish are to be had, the cooking of even the commonest vegetables is disgraceful. Ill gathered, overgrown, they are so cooked as to be uneatable. There is a movement now in the way of cooking the best vegetables in their own juices, by braising and stewing; and not throwing their nutritious juices away in quantities of water. However much our own cookery may improve in this way, much more is to be expected from the study of the ways of nations who live almost wholly on vegetable food. The best Italian cooks treat rice and the products of wheat so well that they form a complete and delicious food; the Indian vegetable curries are famous, and the Arabs have very agreeable dishes of vegetable food delicately flavoured. Among these people we see that good cookery even of a few simple things will give complete nourishment to man. How much more, therefore, might be expected from the vast range and variety of foods within our reach in all fertile countries, and how well worth our while it is to improve our ways of dealing with them! This concerns not only green vegetables, but cereals, pulse, roots, and fruits.

Books do not help us much in this way, because they are

usually based on the older ways as to flesh food; but there is one just come out which is helpful, and that is Colonel Kenny Herbert's book on "Vegetarian and Simple Diet" (Swan Sonnenschein). The fact that it leaves out such a rich source of food as the Apple shows the vastness of the subject. Of all sources of garden food nothing is more precious and varied than the finest apples of America and Britain. Good in the raw state, they add a variety of delicate dishes which nothing else equals.

W. R.

AUTHORS' PREFACE

(*Abstract*)

We have had some difficulty in fixing the limits within which we should confine ourselves in this work. It is not always easy to define exactly what a "vegetable" is, and to decide upon the plants to which the term is applicable and those to which it is not. In this respect, however, we thought it better to be a little over-indulgent rather than too strict, and, accordingly, we have admitted into the present work not only the plants which are generally grown for use in the green state, but also those which are merely employed for flavouring others, and even some which at the present day have, for the most part, disappeared from the kitchen garden, but which we find mentioned as table vegetables in old works on horticulture. We have, however, restricted our list to the plants of temperate and cold climates, omitting the vegetables which are exclusively tropical, with which we are not sufficiently familiar, and which, moreover, would interest only a limited class of readers.

We made it a point to determine the botanical identity of every plant mentioned in this volume by giving the scientific name of the species to which it belongs. Before commencing the description of any form of cultivated vegetable, we are careful to state, with strict exactness, the place in botanical classification occupied by the wild type from which that form is considered to have sprung. Accordingly, we commence every article devoted to one or more cultivated varieties, by giving a botanical name to all the subjects included in the article—a name which indicates the genus and species to which all these forms, more or less modified by cultivation, should be referred. For instance, all the varieties of garden Peas, numerous as they are, are referred to *Pisum sativum*, L.; those of the Beet-roots to *Beta vulgaris*, L.; and similarly in the case of other plants.

While on this subject, we may be permitted to remark that the constancy of a species is very remarkable and well deserves our admiration, if we merely take into view the period of time over which our investigations can extend with some degree of certainty. We see, in fact, species brought into cultivation before history began, exposed to all the modifying influences which attend seed-sowing incessantly repeated, removal from one country to another, the most important changes in the nature of the countries and climates through which they pass, and yet these species preserve their existence quite distinct. Although continually producing new varieties, they never pass the boundaries which separate them from the species which come next to them.

Among the Gourds, for example, which are annual plants that have been in cultivation from times so remote that assuredly many thousand generations of them have succeeded one another under the conditions which are best calculated to bring about important modifications of character, we find, if we give ever so little attention to the subject, the three species from which all the varieties of cultivated edible Gourds have originated ; and neither the influences of cultivation and climate, nor the crossings which may occur from time to time, have brought forth any permanent type or even a variety which does not speedily revert to one of the three primitive species. In each of these species the number of varieties is almost indefinite, but the limit of these varieties appears to be fixed. Does any plant exhibit more numerous or more diversified varieties of form than the cultivated Cabbage? Is any difference more marked than that which exists between a Round-headed and a Turnip-rooted Cabbage, between a Cauliflower and Brussels Sprouts, between a Kohl-Rabi and a Tree Cabbage? And yet these vast dissimilarities in certain parts of the plants have not affected the character of the essential parts of the plants, the organs of fructification, so as to conceal or even to obscure the evident specific identity of all these forms. While young, these Cabbages might be taken for plants of different species, but when in flower and in seed, they all show themselves to be forms of *Brassica oleracea*, L.

It seems to us that the long-continued cultivation of a very considerable number of kitchen-garden plants, while it demonstrates the exceedingly great variability of vegetable forms, confirms the belief in the permanence of those species that are contemporary with Man, and leads us to consider each species as a kind of system

having a distinct centre (although this may not always be represented by a typical form), around which is a field of variation almost unlimited in extent, and yet having certain, though still undetermined, boundaries.

The idea of the species, in short, rests upon the fact that all the individuals of which it is composed are, to an indefinite extent, capable of being fertilised by one another, and only by one another. Now, as long as it has not been proved that a variety artificially produced by man has ceased to be capable of being fertilised when crossed with other individuals of the same species, while it continues fertile to an indefinite extent when impregnated by individuals of its own special form,—so long it cannot be said that a new species has been brought into existence; and, up to the present, no one, so far as we are aware, has ever asserted that such a case has occurred. Far from it, indeed, as this capability of being fertilised by its own members, and only by them, constitutes, so to say, the very essence of the species. It is this which alike ensures its permanence, its pliability, and its power of adapting itself to the various conditions under which it may be compelled to exist.

Reverting, however, to the plan of our work, we have taken care not to give any names that are not really in common use and well known, and have avoided mere translations. In publishing synonyms, we have been very cautious, taking especial care not to admit any that are not thoroughly well established, and, in most cases, verifying them by a comparative cultivation of those plants which we considered identical. Having accurately identified each plant under consideration by giving its botanical and various common names, we mention its native country, adding a brief history of the plant, when we possess any reliable data on this subject. After mentioning the native country and giving the history of the plant, we describe its mode of growth, whether annual, biennial, or perennial. Here it should be remarked that many plants are grown in the kitchen garden as annuals which are biennial or perennial as regards their fructification. For kitchen-garden purposes, it is enough that these plants attain in their first year a size sufficiently large for table use, and this is especially the case with most plants which are grown for their roots, such as Carrots, Beet-roots, Turnips, Radishes, etc.

The descriptions, properly so named, of the different kinds of

kitchen-garden plants have been to us a subject of long-continued labour and much care. Some persons, perhaps, may consider them to be somewhat vague and elastic in their expression, and such a remark may apply to many of them ; but, on the other hand, if they had been more hard and fast, and had been drawn up in more peremptory terms, they would not be so true. Account must be taken of the variable appearance of cultivated plants under the different conditions in which they are grown. A season more or less favourable, or sowing earlier or later the same season, is sufficient to produce a material alteration in the appearance of a plant, and a precise description of it as it then presents itself would obviously exclude other forms of it which should be included. Nothing is easier than to describe a single individual in the most exact terms, just as it is the easiest thing in the world to draw precise conclusions from a single experiment ; but when a description is to be applicable to a great number of individuals of the same variety and the same race, the task is more difficult, in the same degree as it is when one endeavours to form a conclusion at the close of a series of experiments which give different and sometimes contrary results. Nearly all our descriptions, which in the first instance were drawn up with the growing plants before our eyes, have been, from time to time and season after season, read over again with new crops of the same plants before us. It is the variations which we have noted in the size and appearance of the same plants when grown under different conditions that have induced us to pen our descriptions with a broadness which enables them to include the different aspects which the same kind of plant assumes according to the different circumstances under which it is grown.

Whenever we have been able to seize upon any prominent and really permanent feature in the characteristics of a variety, whether that feature may be found in some important peculiarity or in a fixed uniformity in the size or shape of variable organs, we have been careful to bring it conspicuously into view, as the surest means of recognising the variety in question. Most frequently, in fact, the experienced cultivator of kitchen-garden plants recognises different varieties from one another by the general appearance of each, the peculiar aspect which the plant presents, and which more frequently depends on certain proportions in the position and relative size of the various organs than on any strictly structural characteristics. Such distinctive marks, although they never escape a practised eye,

frequently baffle description and definition. Observation and practice alone can teach any one how to see and recognise them with certainty ; therefore we are fortunate, whenever a variety is distinguished by a constant perceptible feature, to be able to express its distinctness by a single word or a short phrase. Characteristic features of this kind are found in the presence of spines on the leaves of the Prickly Solid Cardoon (*Cardon de Tours*), in the reversed curve of the pods of the Sabre Pea, in the greenish colour of the flowers of the Dwarf Blue Imperial Pea (*Pois Nain Vert Impérial*), and similarly in many other cases.

A part of each description on which we have bestowed much attention is that which refers to the seed. In addition to noting the character of its external appearance, we have been careful to state, as precisely as we could, its actual size and relative weight ; and lastly, we mention the length of time during which the germinating power of the seed of each species continues active. It will be easily understood that this could only be expressed in figures representing an average. The duration of the germinating power really depends very much on whether the circumstances under which the seed has been harvested and kept have been more or less favourable. The figures given in this work represent the average taken from an exceedingly great number of trials most carefully carried out. The number of years tabulated is that during which the seeds under trial continued to germinate in a perfectly satisfactory manner. For our present purpose, we have considered seeds deficient in germinating power when they yield only half the percentage of plants which they did in the first year of trial which was made with seeds of the same year's growth. For example, if, in the first year, a certain variety of seeds germinated to the extent of 90 per cent., we considered the same seeds to be deficient in germinating power as soon as they began to yield only less than 45 per cent. of plants. Any seeds, of which the germinating power continues active for four or five years on an average, do not entirely lose it after the lapse of ten years or more. It is proper to add that our trials were all made with well-saved seeds. Nothing has a greater tendency to destroy the germinating power of seeds than the influence of dampness and heat. This is what makes carriage through tropical countries so often fatal to their good quality. Up to the present, no better method of keeping seeds has been discovered than that

of putting them in linen bags and storing them in a dry, cool, well-ventilated place.

As often as we could, we have supplemented our descriptions with figures of the plants described. The size of the page did not generally allow of these figures being given in large dimensions, but we have endeavoured to exhibit at least their comparative sizes by figuring the different varieties of the same vegetable on a scale of uniform reduction, so far as this could be done. The reduction has been, necessarily, greater in the case of very large kinds of vegetables, such as Beet-roots, Cabbages, and Pumpkins, than that which applies to the small kinds ; however, we hope that, thanks to the talent of the draughtsman, M. E. Godard, even the most reduced figures will still give a sufficiently correct idea of the plants which they represent. The Strawberries, the Peas in pod, and the Potatoes are almost the only subjects which it was possible to figure in their natural size. Under the figures we also give the scale of reduction in fractions of the actual diameter of the plant. For example, when a subject is described as reduced to $\frac{1}{6}$, that means that the plant, in its natural size, is six times taller and six times broader than the figure which the reader has before him. We have been careful not to select any subjects for our figures except plants that were thoroughly well marked and of average size. It may be that, in this respect, and also in our estimation of distinctive features, we have sometimes made mistakes. If so, we shall gladly acknowledge our errors and rectify them as soon as possible. Our only ambition, in preparing this work for the press, is to do so in good faith and without prejudice.

Our cultural directions are to be regarded as nothing more than a help to memory, and we do not in any way put them forward as intended to supply the place of the full cultural instructions which are given in standard horticultural works or in various excellent special treatises which have been published in our own and other countries.

Finally, we conclude the article devoted to each plant with a few remarks on the uses to which it is applied, and on the parts of the plant which are so used. In many cases, such remarks may be looked upon as idle words, and yet it would sometimes have been useful to have had them when new plants were cultivated by us for the first time. For instance, the Giant Edible Burdock of Japan (*Lappa edulis*) was for a long time served up on our

tables only as a wretchedly poor Spinach, because people would cook the leaves, whereas, in its native country, it is only cultivated for its tender fleshy roots.

There is one mistake against which professional cultivators, and also amateurs, especially those who have not had much experience, should be on their guard. This is the delusion of imagining that they have succeeded in raising a new variety when a form that seems to possess some merit makes its appearance amongst a number of seedlings. The plants raised from seed obtained by crossing should at first be regarded merely as units, which may have a certain value in the case of trees or plants that are long-lived and are propagated by division, but which, after all, are only units. Taken all together, they can only claim to be considered a variety when they have continued to reproduce themselves, for several generations, with a certain amount of fixity of character; and, almost always, the really difficult and meritorious part of the work is the establishment of the variety—a tedious and delicate operation, by which, when successful, the new variety is endowed with the constancy and uniformity of character without which it is not worth offering to the public.

Many varieties obtained in this way remain confined to their own localities, because they are not more widely known; some cannot reproduce themselves faithfully when sown under conditions different from those of their native place, from which fresh seed must be obtained, from time to time, if it is desired to keep the variety very pure; hence those local reputations which are one of the mainsprings of horticultural commerce. Generally most of the cultivated varieties, although they continue sufficiently distinct and true when they are grown with care, are all the better for being raised from an importation of new seed from the place in which experience has shown that it is grown best and truest to name.

PARIS, 4 QUAI DE LA MEGISSERIE.

THE VEGETABLE GARDEN

ANGELICA

Angelica Archangelica, L.; *Archangelica officinalis*, Hoffm.
Umbelliferæ.

French, Angélique officinale, A. de Bohême, Archangélique. *German*, Angelica, Engelwurz. *Flemish*, Engelkruid. *Dutch*, Engelwortel. *Italian*, *Spanish*, and *Portuguese*, Angelica.

A NATIVE of the Alps.—Perennial.—This plant has a very thick, hollow, herbaceous stem, upwards of 4 ft. high; leaves very large, from 1 to 3 ft. long, red-violet at the base, long-stalked, and terminating in three principal toothed divisions, which are sub-divided into three similar smaller divisions. Flowers small, numerous, pale yellow, in umbels which unite to form a roundish head. Seed yellow, oblong, flat on one side, convex on the other, with three prominent ribs, and membranous edges. The germinating power of the seed continues for a year, or at most two.

Angelica.

CULTURE.—Angelica requires a good, rich, slightly humid, and deep soil. The seed is sown in spring or summer in nursery beds, and the plants are planted out permanently in autumn, and will commence to yield in the following year (provided they are well grown), when the leaves may be

cut. In the third year, at the farthest, the plants run to seed; in this year, both stems and leaves are cut, and the plantation is destroyed.

USES.—The stems and leaf-stalks are eaten preserved with sugar. The leaves are also used as a vegetable in some parts of Europe. The root, which is spindle-shaped, is employed in medicine: it is sometimes called "The Root of the Holy Ghost." The seeds enter into the composition of various liqueurs.

ANISE

Pimpinella Anisum, L. *Umbelliferæ.*

French, Anis. *German*, Anis. *Flemish* and *Dutch*, Anijs. *Italian*, Aniso, Anacio. *Spanish*, Anis, Matalahuga or Matalahuva. *Portuguese*, Anis.

Native of Asia Minor, Greece, and Egypt.—Annual.—A plant from 14 to 16 in. high, with leaves somewhat like those of Celery, and finely divided stem-leaves, the divisions being almost thread-like, like those of Fennel leaves. The seed, which is small, oblong, and gray, is known for its delicate flavour and perfume. Its germinating power lasts for three years. Anise is sown, where it is to remain, in April. It prefers warm and well-drained soil. It grows very rapidly, and requires no care. The seed ripens in August. The plant is seldom seen in England, but we have grown it easily in the London district.

Anise.

USES.—The seeds are frequently used as a condiment, or in the manufacture of liqueurs and comfits. In Italy, they are sometimes put into bread. It is of very ancient use in England, and was known to the ancients, being indeed among the oldest of medicines and spices. It is one of the spices which the Grocers' Company of London had the weighing and oversight of from 1453. According to the wardrobe accounts of Edward IV., it appears the royal linen was perfumed by means of "lytill bagges of fustian stuffed with Ireos and *anneys*."

ARTICHOKE (FRENCH)

Cynara Scolymus, L. *Compositæ.*

French, Artichaut. *German*, Artischoke. *Flemish* and *Dutch*, Artisjok. *Danish*, Artiskok. *Italian*, Articiocca, Carciofo. *Spanish*, Alcachofa. *Portuguese*, Alcachofra.

A native of Barbary and South Europe.—Perennial (but cultivated plants will not yield profitably after two or three years).—Stem from 3 to 4 ft. high, straight, channelled; leaves large, about 3 ft. long, whitish green above, and cottony underneath, decurrent on the stem, pinnatifid, with narrow lobes; terminal flowers very large, composed of an assemblage of blue florets, covered with membranous overlapping scales, which, in cultivated plants, are fleshy at the base. Seed oblong, slightly flattened, somewhat angular, gray, streaked or marbled with deep brown. Its germinating power continues for six years.

CULTURE.—The Artichoke may be propagated from seed, or by dividing the stools, or from suckers. The last method is that which is most usually employed, as it is the only one by which the different varieties can be reproduced true to their proper character. Old stools of Artichokes produce underground, around the neck, a certain number of suckers or shoots which are intended to replace the stems which flowered the year before. These shoots are generally too numerous on each stem to allow all to grow equally well, and it is the practice, in spring, to uncover, down to below the part from which the shoots issue, the old stools, which during the winter had been protected with a covering of soil or leaves. The shoots are then all detached from the stool, except two or three of the finest, which are allowed to remain to contribute to the crop. The operation of detaching the shoots is one which requires care and a practised hand, for it is important that along with each shoot a portion of the mother-plant (which is called the "heel") should also be removed, without too severely wounding the old stool, as this might cause it to rot away. The shoots, as soon as they are detached, should be trimmed and dressed with a pruning-knife, so as to remove from the "heel" any parts that are bruised or torn, and to shorten the leaves a little; the shoots may then be planted permanently. The best soil for a plantation of Artichokes is that which has been well dug, and is rich, deep, almost humid, and at the same time well drained. Low-lying level ground and valley-bottoms in which the soil is black and almost turfy are especially suitable for the cultivation of the Artichoke.

The shoots are planted in rows, at a distance from each other of from about 2½ ft. to nearly 4 ft. (according to the richness of the soil and the variety grown), and with the same distance between the rows. They are placed firmly in the ground, but not too deep, and then well watered, after which it is only necessary to keep the ground clean by frequent use of the hoe, and to water plentifully

when watering is necessary. If the plants are sufficiently manured and watered, almost all of them will yield in the autumn of the same year. Sometimes, instead of planting out the shoots permanently immediately after they are detached, they are first planted in nursery-beds, from which they are afterwards removed and placed out permanently at the end of June or July. The success of the plantation is, in this way, more certain, and the yield in autumn is, at least, quite as abundant as that produced by following the other mode of planting.

When Artichokes are raised from seed, it should be sown in February or March, in a spent hot-bed, and the plants should be planted out permanently in May. Plants raised in this way may yield in the autumn of the first year. A sowing on the spot where the plants are to remain may also be made at the end of April or in May, but the plants thus obtained will not yield until the next year.

At the commencement of winter, Artichoke plants should be protected against frost, which sometimes destroys them in our climate. In order to do so, all the stems which have flowered should be removed from the stools by cutting them off as close to the root as possible. The longest leaves also should be shortened, after which soil should be heaped around the stools to the height of 8 or 10 in. above the neck of the root, care being taken not to let any of it get into the heart of the plant. Should the frost be very severe, it is advisable to give the stools an additional covering of dry leaves or straw; but it is important that this covering should be removed whenever the weather is mild, in order to prevent the danger of its rotting the plants. At the end of March, or in the beginning of April, when hard frost is no longer to be feared, the soil is stirred and manured if necessary, the protecting heaps are removed from about the stools, and the work of detaching the suckers or shoots is proceeded with as described above. It is advisable to partially renew plantations of Artichokes every year, and also not to allow any plantation to last more than four years.

Artichokes are grown in every British garden, but rarely so well as they deserve to be.

The culture of the Artichoke varies somewhat according to situation and climate. In the north and midlands, it is necessary to cover it in winter with litter or leaves, to protect it from frost; in the south it is sufficient to earth it up, but even this precaution is not taken everywhere. The plants are increased by seed and offsets. Varieties of it, however, do not always come true from seed, and they require, besides, more time than offsets before they produce heads; offsets, therefore, are most generally adopted. With good culture heads may be had for six months in succession. Commencing with established plants that have been protected through the winter, these will afford the first supply in May

and June; and, for the next two months, good heads may be had from a planting of strong suckers made in March; for the end of summer and autumn, from a successional planting made in May. Another very good plan is to cut back, close to the earth's surface, a few old plants early in spring, and occasionally afterwards. These will produce a thicket of shoots, which should be early thinned by pulling and cutting the weakest, and allowing only a portion of the strongest suckers to remain. These will produce, in succession, nice young heads. If the heads be allowed to attain their full growth, or nearly so, they are not so fine in flavour, and have lost most of their tenderness, so that only a part of the base of each scale and the base of the head are fit to eat. The Artichoke will grow luxuriantly in rich moist land in summer, but it will not stand our winter in wet quarters. It will grow on any kind of soil, if well manured, trenched, and pulverised; but no soil suits it better than a good open, sandy, rich loam, trenched and well manured. The plant is in its perfection at the second and third year after planting.

Years ago it was the custom in most gardens at the approach of winter to cover the plants entirely, or nearly, with litter, and then to bank them up with earth, in which condition they remained through the winter. The Artichoke is, however, much hardier than was at that time supposed; and plants not protected seldom suffer injury. All the protection they require in the severest weather is a few dry leaves or a handful of Bracken placed over the crowns of each plant, to be removed when the weather changes. Plants are often allowed to remain too long in one spot, and where this occurs the heads all come into use at one time. The best remedy for this is to make a small plantation every year, which will come in after the old roots head.

Artichokes may be often seen starved under trees, where neither light nor sun can reach them. A clear, open piece of good soil, well manured and deeply trenched up into rough ridges, to get well pulverised and sweetened by atmospheric influences, free from trees and hedges, is the proper place to plant them—planting the first batch in March, and for succession another in May, afterwards keeping them thoroughly clean and maintaining an open free surface by often hoeing the ground about them. By such means a dozen stools will produce as many fine rich heads as double the quantity will do by the old-fashioned crowding, neglectful system. Make choice in early spring of good strong suckers, take off the stools carefully with a sharp, strong paddle-trowel or Asparagus knife, with some root or heel of the old stool to them, to hold them in the ground; plant them singly 2 ft. apart, in rows at least 4 ft. apart, or in groups of three in triangles, at 4 ft. apart, at least, in the row. Protect them as soon as planted, against the sun and cutting winds, with Seakale pots which are out of use, or with evergreen boughs, or some other convenient protecting material. Those thus early planted will produce fine crisp heads the same summer and autumn. If in cutting heads the *stems also* be cut close to the ground, new suckers will soon appear, and if duly thinned will produce a late crop; thus, in various ways, by a little trouble and attention a regular supply of good Artichokes may be had from

May to October, which will be much more satisfactory than having a glut at midsummer and none afterwards.

Copious supplies of manure water may be advantageously given to Artichokes during dry weather, especially in the case of old stools that have been in the same soil for a length of time. Previous to watering, the soil between the rows should be slightly pricked over with a fork, to allow of the water soaking in more readily. Whenever watering is attempted, let it be done thoroughly, and if a good mulching of half-rotten manure can be afterwards applied between the rows, it will keep the roots in a moist state for a long time, and the effects of the watering will soon be seen. When grown on poor or dry soils, the effect of covering the soil with light manure, lawn mowings, or any such material that can be spared is excellent. In rich, moist soils it is not wanted, except in very dry seasons.

USES.—The base of the scales of the flower, and also the receptacle or bottom of the Artichoke, are eaten either cooked or raw. The stems and leaves may also be used, when blanched, like those of the Cardoon, to which they are in no way inferior in quality. The culture of this good vegetable deserves more attention with us ; it should be more used as a vegetable, and the good French varieties should be grown more extensively. It is a vegetable of the highest value and delicacy when gathered fresh and properly cooked, as it may be in various ways. The London market often has heaps of Artichokes which have become shrivelled and "heated" on their long journey from the south of France, while our own valley soils are excellent for the plant.

VARIETIES

Paris Artichoke.

Large Paris Artichoke.—A vigorous, comparatively hardy plant, of medium height; leaves silvery gray, the ribs reddish, especially at the base, and without spines; stems stiff, erect, usually with two or three branchings. Heads large, broader than long, particularly remarkable for the breadth of the receptacle or bottom of the Artichoke. Scales very fleshy at the base, at first very closely pressed together, then broken, and in the two upper rows slightly bent backwards.

They are pale green throughout, except at the base, where they are slightly tinged with violet; they have few or no spines. The height of the stems does not exceed from 2½ to 3 ft., and a plant two years old will have three or four stems. This variety is the one which is most extensively cultivated in the neighbourhood of Paris. It is not a very early variety, but it is the best for yielding heads every year of its cultivation. No other variety has such a broad, thick, and fleshy receptacle or bottom; it also reproduces itself fairly well from seed.

Green Provence Artichoke.—A plant of medium height, with rather deep green leaves; heads green, somewhat more elongated than those of the preceding variety, but not so thick; scales of a uniform green, long, rather narrow and spiny, moderately fleshy at the base. This variety, which is extensively grown in the south of France, is usually eaten raw with pepper sauce. The seeds of this variety, when sown, always produce a large proportion of spiny plants.

Flat-headed Brittany Artichoke.—A tall and vigorous plant, 3¼ to 4¼ ft. high; leaves luxuriant; heads large, broad, and short, nearly globular in shape, flattened on the top; scales green, brown, or slightly tinged with violet on the edges, short and broad, rather fleshy at the base. This variety is very extensively cultivated in Anjou and Brittany, from which provinces large quantities are sent in May to the Central Market in Paris.

Flat-headed Brittany Artichoke.

As the number of varieties of the Artichoke is very great, we shall limit ourselves to mentioning only those which we consider the most worthy of notice next to the ones which we have just described as being most generally cultivated.

Copper-coloured Artichoke of Brittany.—A rather low-growing plant; heads round, large, violet at first, but red-copper colour as they advance in growth; scales pointed.

Perpetual Artichoke.—A medium-sized plant not exceeding 27 or 28 in. in height, with silvery gray leaves and red stems, deepening in colour at the base. The young heads are tinged with purple, which turns into purple-gray as their size increases. The scales are indented, spineless, and very fleshy. It is much grown on the French Riviera for the sake of the numerous small heads it produces as early as January, which are usually eaten raw with oil and vinegar, as a delicate *hors-d'œuvre* for which there is always a great demand. For this reason the plants are abundantly watered from the middle of August onward. When fully grown the heads may be cooked and eaten in the usual way.

Perpetual Artichoke.

Early Purple Globe Artichoke. — A rather dwarf plant, not more than 28 in. in height; leaves grayish green, large but much laciniated; the heads are round, green when young, tinged with dark purple when full grown; scales long, pointed, lightly spiny. Although this variety came first from the south of France, it does well all over France, owing to its earliness. Like the preceding, it is best for use when young. It has superseded the *Purple Provence Artichoke*, and, like it, is apt to take cold, and should not be uncovered too early in the spring.

Gray Artichoke.—A variety with elongated, rather thin and loose heads, widening out at the top. It is specially cultivated in the neighbourhood of Perpignan, is a very early kind, and flowers

almost continuously. It is sent in large quantities to the Central Market in Paris during the winter and in the beginning of spring.

Black English Artichoke.—A very distinct kind, with numerous heads of medium size, nearly round and quite flat-topped, of a handsome dark violet colour.

Roscoff Artichoke.—A very tall plant; heads egg-shaped, of a rather pale green colour; scales spiny.

Oblong St. Laud Artichoke.—Heads large, elongated; scales loosely overlapping each other at the base, and much more closely set at the top, scarcely emarginate, with a small spine at the point.

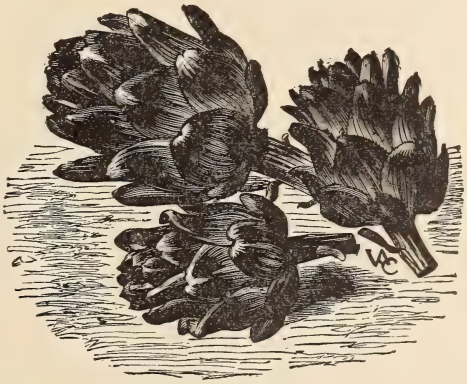
Sweet Artichoke of Genoa.—A rather tender plant; heads pale green, elongated, spiny. The flesh of the receptacle is yellow, sweet, and very delicate in flavour.

Purple Provence Artichoke.—A rather low-growing plant, with swollen short and blunt heads, of rather deep violet when young and becoming green as they mature. A very productive variety, but only in spring, and somewhat impatient of cold.

Violet Quarantain Artichoke of Camargue.—Plant of medium height; heads rather small; scales round, erect, of a violet-tinged green colour. An early variety.

Violet St. Laud Artichoke.—Heads of medium size; scales green on the exposed parts, but violet on the parts covered by other scales, and also on the tips.

Florence Artichoke.—Heads very numerous, elongated, pointed, of an intense violet colour. This variety is very much grown in the neighbourhood of Florence. The heads, gathered when young and tender, are generally boiled and eaten entire.



Purple Venice Artichoke.

Purple Venice Artichoke.—Heads of medium size, long, conical, dark purple, especially when young; scales fleshy and delicate in flavour; tinged with salmon-yellow on the part not exposed to the light. Hardy, but not very productive.

JERUSALEM ARTICHOKE*

Helianthus tuberosus, L. *Compositæ.*

French, Topinambour. *German*, Erdapfel. *Flemish*, Aardpeer. *Danish*, Jordskokken. *Italian*, Girasole del Canada, Tartufoli. *Spanish*, Namara. *Portuguese*, Topinambor.

Native of North America.—Perennial.—A tall plant, with annual stems, but producing, year after year, underground shoots which are swollen into genuine tubers. It was introduced into Europe some centuries ago, and is very generally cultivated on a large scale. The stem is erect and very stout, sometimes over 6½ ft. high, often branching in the lower part, and bearing oval-acuminate leaves, which are long stalked and very rough to the touch; flower-heads comparatively small, seldom opening in the north of France before October; florets yellow; tubers violet-red, slender at the bottom, and swollen in the upper part, where they are about 2 in. in diameter, marked with hollows and scale-like enlargements. They form very late, and should not be dug until the stems have nearly ceased growing. The flesh is sweet and rather watery.

Jerusalem Artichoke (⅛ natural size).

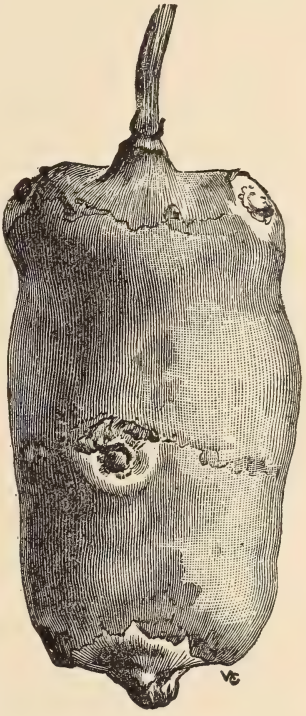
CULTURE.—The tubers are planted in the open ground, in March or April, in rows 2½ to 3 ft. or more apart, and with a distance of 12 to 14 in. between the tubers. The plants require no attention beyond the occasional use of the hoe, and the tubers are dug as they are wanted. They are not affected by frost as long as they are left in the ground, but are very liable to be injured if exposed to it after they are taken up. In warm countries the plant produces seed, from which it can be propagated. Experiments made with the view of raising improved

Improved Yellow Jerusalem Artichoke.

* See also p. 758.

varieties from seed have not hitherto been attended with very satisfactory results. From one of these experiments we obtained a variety with yellow tubers which have a finer and more agreeable flavour than the common kind, but the plant is far less productive. This variety may answer as a kitchen-garden plant, but is not suitable for extensive or field culture.

As this vegetable may be grown in almost any place, it is generally planted on gravelly pieces of ground that would be too dry for other crops. Knolls or mounds are usually cropped with it, and it is also grown along the sides of hedges and in shady places. A few growers, however, grow it on good soil in open and somewhat exposed positions, and the result is an abundant crop of fine tubers. After preparing the ground by manuring and digging or trenching it, the tubers are planted in February, in rows like Potatoes, and are allowed to grow unchecked, and without being earthed up, till November. It has not become very popular perhaps owing to its resemblance to the Potato, to which it is, no doubt, inferior, if looked at only from the Potato standard. But it never should be so regarded, being very distinct from any Potato, and having distinct uses in cookery. It is excellent as baked by French and Italian cooks, the flavour being richer and better this way.



Jerusalem Potato Artichoke.

Jerusalem Potato Artichoke.—A remarkable variety, the result of a series of sowings made at Verrières with seeds gathered in Corsica by Dr. Joseph Michaud. It is distinguishable from the common variety by the greater size of its tubers, which are also rounder, less angular and knobby; they are yellow in colour. In quality it is equal to the old sort and somewhat superior to it in yield.

ASPARAGUS

Asparagus officinalis, L. *Liliaceæ.*

French, Asperge. *German*, Spargel. *Flemish* and *Dutch*, Aspersie. *Danish*, Asparges. *Italian*, Sparagio. *Spanish*, Esparrago. *Portuguese*, Espargo.

Native of Europe.—Perennial.—A plant with numerous simple swollen roots, disposed in the form of a claw, from which spring several stems over 4 ft. in length, straight, branching, very smooth, slightly glaucous, with very minute cylindrical fascicled leaves.

Flowers pendent, small, greenish yellow, succeeded by spherical berries about the size of a pea, which in autumn assume a very vivid vermilion colour. Seeds black, triangular, large, preserving their germinating power for five years at least.

CULTURE.—Asparagus, which is one of our earliest spring vegetables, is also one of the most widely appreciated and extensively cultivated. In many districts, and notably in the neighbourhood of Paris, the cultivation of Asparagus for market is a branch of industry of the highest importance; and although there are, undoubtedly, some soils and localities in which its cultivation is attended with special success, there is hardly any place in which a plantation of this vegetable may not be made, if only some pains are taken in establishing it and keeping it in order. A light and well-drained soil is the best for this purpose, but a plantation may be successfully made in any soil which is not either absolutely wet or impermeably stiff; stagnant moisture being, above all other things, fatal to this plant.

In order to establish a plantation, the cultivator may either raise his own plants or purchase them ready for use. In the first case, the seed should be sown in March or April, in good, rich, mellow soil (in drills preferably), and lightly covered with soil, leaf-mould, or compost (a covering from $\frac{1}{2}$ to $\frac{3}{4}$ in. deep will be quite sufficient). After the seed is well up and the plants have begun to gain some strength, they should be thinned out, if necessary, so as to leave a space of about 2 in. from plant to plant in the drills. It is very important for the ulterior favourable development of the plants, and for the satisfactory appearance of the crop, that they should never suffer from the want of nourishment caused either by an insufficiency of manure or by the plants being placed too closely together. During the rest of the summer and autumn, water should be given copiously whenever there appears to be need of it, and the ground must be kept very clean by the use of the hoe, which should be carefully handled, so as not to injure the roots of the plants. Plants treated in this way will be ready to be planted out permanently the following spring; they will strike root sooner, and give better results than plants of two years' growth, while the crop which they yield will come in quite as soon.

Those who do not wish to take the trouble of raising plants themselves in this way can easily procure them from seedsmen. Young Asparagus shoots may be kept for several days, and even weeks, out of the ground, without any detriment either to their striking root or to the appearance of the crop which they will yield. The raising of these plants for sale has become an important industry.

It has been already stated that, in order to establish a plantation of Asparagus, a light and well-drained soil should, if possible, be

selected; but if the cultivator has no other soil except one that is very stiff and damp, he should, by a thorough drainage, render it wholesome to the depth of at least 12 or 16 in., and direct all his efforts to the improvement of the surface. The experience of the Asparagus growers at Argenteuil and other localities near Paris, who have brought the culture of this plant to a degree of perfection unknown before, seems to prove that the best results are obtained by liberally manuring the upper portion only of the soil in which the plants are growing, as the roots have naturally no tendency to descend deeper, if they find sufficient nourishment near the surface. It is obvious that, in establishing a plantation of Asparagus, account must be taken of the nature of the soil in which it is to be made, and which, consequently, must be dug more or less deeply; but it may be said generally that the chief point on which success mainly depends, is not to put the stools out of reach of the influence of heat, while, at the same time, placing them in a medium in which they will find an abundance of the nourishment which they require.

Asparagus (after 7 years' planting).

The stools, then, should be planted at no great depth, and no great quantity of soil should be heaped over them, except at the time when the young shoots are growing, when it is absolutely necessary to do so, in order to obtain these of sufficient length. As to the disposition of the young plants, there is no fixed rule. They may be placed either in single rows, or in beds containing two or three rows each; but it is advisable, in all cases, to have a distance of at least 2 or 2½ ft. from plant to plant in all directions. This will be found advantageous from a double point of view, as ensuring a crop of greater abundance and better quality.

Planting in beds being the most usual way, we shall briefly describe how it is done, first observing that the methods of establishing and cultivating the plants are almost exactly the same as those pursued with plants grown in single rows. In March or April, or even later, the ground for the plantation is carefully laid out, having been previously well dug and plentifully manured before winter. The surface of the beds is then slightly

hollowed out to the depth of about 4 in., the soil being transferred to the alleys. Well-rotted farmyard manure, or some other active fertiliser, is then spread over the surface of the bed. In the vicinity of Paris, well-rotted manure or street-sweepings are much used for this purpose. The positions for the stools are then marked out, in two or three rows according to the width of the beds, at the distances mentioned above. At each of these positions is deposited a small heap of well-manured soil or leaf-mould, about 2 in. high, on the top of which the young stool is placed, care being taken to spread out the roots all around and to press them gently into the soil. When all the stools are in position, they are covered with leaf-mould or soil mixed with rotten manure, and a sufficient quantity of soil is spread over all to restore the bed almost to its former level. In this way the crowns of the stools will not be buried deeper than about 2 in., and the ends of the roots not deeper than 4 in. A good deal of soil which was replaced by the manure will remain in the alleys and between the rows, and this will be found useful afterwards for earthing-up the plants.

During the first year, the plantation requires no attention beyond the frequent use of the hoe and occasional waterings. At the commencement of winter, the stems are cut down to 8 or 10 in. from the ground, the portions so left serving to indicate the position of each stool. (It is a good plan also, at the time of planting, to stick a small rod into the ground beside each stool to mark its position, as the manure can then be placed exactly over the roots, and there will be little danger of injuring them in the course of hoeing or in any other way.) A portion of the soil which covers the stool is then cautiously removed, leaving only enough to cover the stool to the depth of between 1 and 2 in., and then the manure is applied. This is of various kinds. Those which, from experience, are considered the best, are well-rotted farmyard manure, street-sweepings to which a little sea-salt is sometimes added, and calcareous composts—plaster, marl, lime rubbish, quarry-dust, etc.—if the soil is deficient in such ingredients. The manure is allowed to remain on the surface all through the winter, and at the end of March is dug into and well mixed with the soil. The surface is then neatly levelled down, and the plantation, during the remainder of the second year, is treated exactly in the same way as in the previous year. When the stools are uncovered in the autumn, care should be taken to cut away, close to the root, the withered remnants of the stems which were previously shortened in October. A fresh covering of manure is then applied, which, as before, is left to lie on the surface all through the winter and dug in at the commencement of spring.

In the third year the plants are, for the first time, earthed up. This operation consists in heaping up over each stool some of the

soil taken from the alleys, so as to form a little hillock about a foot higher than the bed. If the plantation has been carefully attended to up to this time, some shoots may now be gathered for use, but not more than two or three from each stool: however, if it is desirable that the plantation should last for a considerable time, it is better to abstain from gathering any now, and to wait till the fourth year for the first gathering. In any case, it is very important to gather the shoots by breaking them off close to the neck of the stool, and not to cut them in the soil, as is often wrongly done, to the detriment, among other things, of the as yet undeveloped shoots. The best plan is to uncover the shoot to be gathered, by removing the soil of the hillock, and then neatly break off the shoot with the fingers or a special implement, replacing the soil of the hillock at once in its former position. This is the invariable practice of careful cultivators in the neighbourhood of Paris. If, from any cause, portions of shoots are found attached to the stool in autumn, they should be altogether removed before winter sets in. In the open air, in the climate of Paris, Asparagus is gathered in the beginning of April, but it is well not to continue gathering after June 15th, if an abundant and early crop is expected the following year. About London it is ten to fourteen days later, and lasts so much longer.

In the fourth year, the treatment of a plantation of Asparagus is precisely the same as in the previous years, consisting simply of the necessary hoeing, watering, and manuring. It is not absolutely necessary to apply manure every year; nevertheless, as the Asparagus is a very greedy plant in the matter of manure, the crop will always be in proportion to the quantity of nourishment it receives in this way. A plantation properly made and carefully attended to will continue productive for ten years or more.

As by the common English way of growing Asparagus it is impossible to get a good result, we give here what are the

Essential Points in the Production of Good Asparagus.

Although the details of the system of growing good Asparagus require some little space to describe on paper, the essential differences between that and the system commonly employed in England are so very clear that they may be shortly stated. Each plant is treated as an individual—as a vigorous subject requiring much space in which to grow, if strong growth and strong shoots are desired. Long experience has taught cultivators that a smaller space than 4 ft. apart will not suffice to give the very best result. At first sight people in this country might suppose that this means a waste of ground, but it really is not so. At first, when the plantation is young, waste of ground is avoided by taking a light crop off between the lines—say, one of Kidney Beans or of early Potatoes; but after a good year's growth, and when the Asparagus gets strong, its roots really occupy the whole space, and the result is

so much more satisfactory than in the common way that the ground affords a better and more satisfactory return. There are two principal ways of growing this crop near Paris—one, devoting a certain portion of ground to it, as usual with us; the other, putting single plants between Vines or small fruits, or placing a plant wherever there is room for one. This last way is important, because it may be carried out in small gardens everywhere, and by its means we should become more readily convinced of the value of giving plenty of room to the roots. Single plants here and there in the open spaces, or in "blanks" between bushes, fruits, or dwarf pyramidal Apple or Pear trees, or single lines, wherever room can be found for them, would, from the superior result, soon convince all of the value of the system.

PLANTING. — Healthy yearling plants are always chosen, and they are planted about the time, or a little before the time, when growth commences in spring. They are invariably planted in a shallow trench somewhat like a Celery trench—not quite so deep and not manured as that is, supposing that the ground is in fair condition. In a trench about 8 in. deep the plants are placed on little low hillocks, and they are carefully attended to for the first year. The plants, be it noted, are 4 ft. apart in the line, and 4 ft. apart in the trench. It will be noticed that the second essential difference between the common way—that in use with us—and the way it is now desired to make known is, that in garden soil of fair quality no manure is used at the time of planting. There are soils in which drainage and preparation might be required; but assuming that the soil is as good as garden soil generally is, no preparation whatever is given beyond the opening of the trench and the planting of each root in a little fine surface soil; the great preliminary expense which has been supposed to be necessary in the culture of this plant is avoided. It is when the plants begin to get strong and well established that a little manure is applied. There is thus a great economy in two things—in plants and in manure, which under the usual system with us is used to the most wasteful extent; so much so, indeed, as to seriously limit production by causing alarm as to expense.

HOME CULTURE.—Our markets are full of Asparagus in spring, grown in other countries, sometimes hundreds of miles from London. It is a vegetable which, perhaps more than any other, loses quality every day after it is cut. This is one reason why it should be grown in our own country. The soil and the climate of England, in almost every county, are admirably suited for the production of Asparagus. Nevertheless, not only do we not supply our own markets, but many possessing large gardens cannot get a really good sample. All this is wholly unnecessary, for every farmer's garden and every cottage garden might grow it well. In large places, where a few beds formed on a costly and wrong principle now furnish a very limited supply of very poor Asparagus, there ought to be an abundance of the best quality. Our markets ought to be supplied by our own people, the early supplies coming from the southern and the late ones from the northern counties.

BLANCHING.—The question of blanching it is more or less apart from the question of cultivation, and people may adopt the only true

system of culture without blanching, if such be their taste. But a closer acquaintance with the subject will probably teach many that there is something in this despised system of blanching, which so many persons, lamentably ignorant on the subject beyond experiences of their own overcrowded and ill-grown beds, declare to be an absurd practice. All good judges and good growers know that it is necessary in the highest culture, and to secure the most delicate flavour, and also to prevent the rising shoots breaking in warm weather into scales or leaves before they are fairly developed. The best foreign Asparagus is blanched by piling little mounds of friable earth over the stools in spring.

Forcing.—Obtaining early supplies of Asparagus should be the aim of all who have gardens of any extent and with the usual appliances for forcing and heating. A peculiarity of this, the most delicate and most esteemed of all vegetables, is that it never retains its true and delicate flavour when "canned" or preserved. We have tried many samples, both from France and America, and never found one that did not taste unpleasantly of the tin. The true way is to prolong the season of the fresh Asparagus as long as we conveniently can.

Forcing may be commenced in November and continued till Asparagus is fit to gather in the open air. One of the best ways is to make a slight hot-bed with stable manure, leaves, and tan (these last materials, if easily obtained, will do well to mix with the manure), in a Melon pit, or under a common Cucumber frame about 2½ft. high; and on the surface of the bed should be placed a few inches of light soil, leaf-mould, or sifted potting refuse, on which to place the plants, because such material does not act so effectually in repressing the heat as ordinary garden soil. When the roots are taken up as completely and carefully as possible, and placed thickly on this, they should be covered with a few more inches of the same material. If the Asparagus be required of its natural colour, give the frame full light and air when fine. Water occasionally with tepid water. After one good watering in the early stage, a little will afterwards suffice, for the winter crops at all events, as the slow evaporation of the period and the moisture of the bed will preserve the soil in a sufficiently moist state. The heat of the bed must be preserved when it gets low by a lining, in the usual old-fashioned way, and by covering closely with mats or litter at night in cold weather—that is, if it be a common frame, but if in a brick pit this will not be necessary. The chief point is to be patient at first, to let it get a slow start, and not to be overexcited at any time, or it will start away and produce nothing but very weak, spindly shoots; whereas, by bringing it on gradually and regularly, a good cutting may be obtained.

An important way is by bringing the heat to the roots, and certainly by this plan a more permanent and stable kind of "grass" is obtained, because plant or root is not in the least disturbed. It is an expensive way, though simple. The beds are, in the first place, very well made of rich, deep soil, and the alleys of these beds are dug out to a depth of 3 ft. or so, and then bricked; or, in other words, the Asparagus beds are made between low brick walls, perforated with "pigeon-holes," to admit of the heat entering freely; and whenever forcing commences, the bricked trench on each side of a bed is filled with fermenting manure,

covered over by a rough shutter, and the beds themselves with small wooden frames made to fit; these are, of course, only placed on during forcing, the beds being exposed in the summer season. The beds should not be more than 4 or 5 ft. wide, to admit of the ready percolation of heat. This method is, however, only suited for places where a good deal of expense is devoted to the garden. The modification or improvement of it, which consists in having hot-water pipes passing between each bed and the chamber covered with a slab of stone, is even a more expensive one. No matter what system is employed, a steady heat of from 60° to 65° will be found most suitable.

In the royal gardens at Frogmore the beds are about 75 ft. long and 7 ft. wide, their sides being built with brick, "pigeon-hole" style. The spaces between the beds are 4 ft. deep, the lower 2 ft. being filled with rich soil; and in the upper 2 ft. are flow and return hot-water pipes connected with a boiler that heats six such ranges. On the tops of the beds are frames. In special severe weather the sashes must be covered with mats or litter.

The French mode of forcing Asparagus usually consists in digging deep trenches between beds planted for the purpose, covering the beds with the soil and with frames, filling in the trenches between the beds with stable manure, and protecting the frames with straw mats and litter to keep in the heat. A speciality is made of forcing the smaller-sized Asparagus in iron houses. There are frames within these houses, just as in many propagating houses in England, and beneath them the Asparagus is forced for the markets, and in large quantities. The houses are heated by hot water, and the culture in other respects resembles that which is practised in forcing gardens in England—that is, when the plants are taken up to be forced indoors or in pits. The disturbance weakens the roots a good deal, and the large table Asparagus is never forced by this method. It is produced specially in a small state for soups, etc., but it is impossible to obtain the large table Asparagus in this way.

USES.—The young shoots, blanched by being earthed up, and gathered as soon as the points appear overground, are used boiled as a vegetable. In Italy and some other countries, they allow them to grow 4 or 6 in. overground, and to become quite green before they gather them. In France, blanched Asparagus with a reddish or purple coloured head is generally preferred.

In Holland and Belgium, the shoots are completely blanched. Notwithstanding this, the Belgian and Dutch Asparagus has a delicate and excellent flavour. English people who only know foreign Asparagus as specimens a week or more old, gathered in Spain or France, make a great mistake in supposing that blanching destroys flavour. Fresh and properly cooked Asparagus is always delicate and good in flavour, whether blanched or not; but growers, cooks, market men, and others who have much experience know that the blanched is the best, and laugh at the dictum of those who say that "only an inch of the blanched grass is fit to eat." Many who discuss the question do not even know how the large Asparagus

is cooked, and have never tasted well-grown Asparagus freshly gathered and properly cooked. Another error is to suppose that only foreign produce is blanched, and our own green. The practice of the market gardeners of London has for many years been to blanch the shoots for most of their length. What they send to the London market is excellent in flavour, and has the advantage over the French of freshness. It may be useful to state here that French cooks boil the very fine Asparagus in bundles standing on end in the water, leaving an inch or so of the points above the water. This enables them to thoroughly cook the stem, without destroying the tops. These, if not enough cooked by the steam, are readily finished by laying the bundle on its side for a few minutes.—R.

VARIETIES OF ASPARAGUS

are pretty numerous, or perhaps it would be better to say that every district in which its culture is successfully carried on has given its name to a kind more or less distinct. It is owing to this circumstance that we have such names as Asperge de Gand, A. de Marchiennes, A. de Vendôme, A. de Besançon, etc. We shall describe only those kinds which appear to possess some really distinctive characteristics.

Common Green Asparagus.—This variety appears to come nearest to the wild Asparagus; the shoots are more slender, more pointed, and turn green sooner than those of any other cultivated kind.

Giant Dutch Purple Asparagus.—The shoots of this variety are thicker and more rounded at the end than those of the preceding kind. They are only tinged at the points with rose-colour or violet-red as long as they are not exposed to the action of light.

White German Asparagus.—Closely resembling the preceding variety, this is generally considered to be a little earlier and is somewhat more deeply coloured, but the difference is so trifling that the two varieties may be safely pronounced identical.

Giant Dutch Asparagus (¼ natural size).

Early Giant Argenteuil Asparagus.—This very handsome variety, obtained by selection from seedlings of the Giant Dutch Purple Asparagus, forms the greater part of those fine bundles of Asparagus which are so much admired in the Paris markets in

spring. The shoots are very notably thicker than those of the parent plant, the head is slightly pointed, and the scales with which it is covered are very closely set, overlapping each other. It is a little earlier than the parent variety.

Late Giant Argenteuil Asparagus.—This variety is not inferior in appearance to the Early one, but it does not commence to yield quite so soon. It is called Late, not so much on account of this difference as because it continues to produce fine large shoots when those of the Early kind have become much thinner than they were at the beginning of the season, and shoots of the Late kind are used to set off the bundles. Experienced cultivators are able to distinguish this variety from the preceding one by the appearance of the point of the shoot, which in this kind has the scales parted from each other like those of the Artichoke, instead of being, as it were, glued down upon each other.

The Germans have a great number of varieties of Asparagus, under the names of Great Giant, Large Erfurt, Early Darmstadt, Large Darmstadt, Large Early White, etc. All of these appear to us to come very close to the Giant Dutch Purple and the White German Asparagus, both of which, as we have seen, are much about the same thing.

In England and America the variety named Conover's Colossal is very much extolled. From what we know of it, we do not think it superior to the Argenteuil varieties. [The difference in kinds is very often the result merely of difference in cultivation. There is a difference between the Early Argenteuil and the Late Argenteuil, and the Early variety should be encouraged by English growers, who should try to supply their own markets as early as possible.—R.]

Balm (plant, $1\frac{1}{2}$; branch, $\frac{1}{3}$ natural size).

BALM

Melissa officinalis, L.
Labiatæ.

French, Mélisse citronelle, Mélisse officinale. *German*, Citronen-Melisse. *Dutch*, Citroen-Melisse. *Danish*, Hjertensfryd. *Italian*, Melissa. *Spanish*, Toronjil, Citronella.

Native of South Europe. —Perennial.—A plant growing about $1\frac{1}{2}$ ft. high, with numerous erect and spreading branches and leaves of pure green;

flowers few, in small clusters; calyx covered with fine soft hairs; seeds brown. Their germinating power lasts for four years. The leaves and all the green parts of the plant exhale a very agreeable and penetrating aromatic odour, especially when bruised. This plant is of very easy culture in England. It is increased by dividing the clumps in autumn, winter, or spring. Like most of the herbs that come from South Europe, it enjoys warm positions, but grows anywhere.

USES.—The leaves are much used for seasoning, and especially in the manufacture of liqueurs and scents.

BASIL

Ocymum Basilicum, L. *Labiatæ.*

French, Basilic grand, Herbe royale. *German*, Basilikum. *Flemish*, Basilik. *Danish*, Basilikum. *Italian*, Basilico. *Spanish*, Albaca, Albahaca. *Portuguese*, Manjericao.

A native of India.—Annual.—Stem about 1 ft. high, very branching; leaves green; flowers white, in whorled leafy clusters seeds small, black, covered with a mucilaginous substance, which swells in water like Flax-seed. Their germinating power lasts for eight years.

Basil ($\frac{1}{8}$ natural size).

CULTURE.—As this plant is a native of warm countries, the best way is to sow the seed in a hot-bed in March or April. The seedlings are planted out in May, in the open air, on a warm border. All kinds of Basil are easily grown in pots. In England, Sweet Basil seeds should be sown about the middle of April, in a genial temperature, and when the seedlings are large enough to handle, they may be potted off singly, or they may be pricked into boxes or seed-pans, or into a frame on a slight bottom heat, from which they should be transferred to their positions in the open air about the beginning of June. Owing to the plant being very tender, this can seldom be done with safety at an earlier period. Sweet Basil succeeds best in a light, rich soil, in which the plants should grow at a distance of 6 or 8 in. apart, and should be well watered until they become established. As soon as they come into bloom they should be cut down to within a few inches of the ground, and the portion cut off should be tied up in small bunches and dried in the shade for winter use. As, however, green Basil is frequently required, the plants which have been cut down should have the soil surrounding them slightly stirred up, and the bed given a surface-dressing of fresh

soil, when the plants will quickly form themselves into healthy little bushes, which will furnish a supply of green leaves until about the beginning of October. A portion of them should then be lifted and potted, or planted in boxes, and should be placed in a somewhat genial temperature, where they will continue to furnish a supply of green leaves when required throughout the winter.

USES.—The leaves are very aromatic and are used for seasoning. Formerly, and even still in some countries, Basil was considered to possess very active medicinal properties. Its agreeable perfume and flavour recommend it as a kitchen-garden plant.

Large Green Sweet Basil.—This appears to be the type of the species. A low-growing plant, forming compact dense tufts about 10 in. or 1 ft. high, and about as much across. Leaves shining green, 1 to 1½ in. long; flowers white, in long clusters.

Large Purple Sweet Basil.—A plant of the same height and habit as the preceding, from which it differs in having the leaves and stems of a dark purplish-brown colour, and the flowers lilac.

Lettuce-leaved Basil.—A variety with broad, crimped, undulating leaves, from 2 to 4 in. long, and of a low-growing thick-set habit, somewhat less branching than either of the two preceding kinds; but the plant is apparently derived from the same type. The flowers, which are closely set in clusters, make their appearance rather later in this variety. The leaves of this Basil, which are much larger than those of any other kind, are also much fewer in number.

Lettuce-leaved Basil (⅙ natural size).

Curled-leaved Basil.—A variety with green jagged-edged, crisped, or curled leaves; very distinct.

Bush, or Dwarf, Basil (*Ocymum minimum*).—A much dwarfer, more compact, and more branching plant than the Common Basil; the leaves also are smaller. Flowers white; seeds like those of the Common Basil. Culture and uses the same.

Green Bush Basil.—This plant, which is of a pleasing green colour, is particularly suitable for growing in pots, and is very commonly cultivated in this way. It may be often seen in the windows of the poorest houses, especially in warm countries, being highly esteemed for the fresh, bright verdure of its foliage and its fine strong aromatic odour. It forms very compact tufts, covered,

in the flowering season, with multitudes of small clusters of rosy-white flowers, which agreeably contrast with the intense green of the foliage.

Compact Green Bush Basil.—The distinctive characteristic of this variety is the very great number of stems and leaves which it produces, causing each plant to present the appearance of a round mass or ball of verdure, close and compact. It is, consequently, far better suited for forming ornamental vases or pots of

Green Bush Basil ($\frac{1}{8}$ natural size).

Compact Bush Basil.

greenery than the Common Bush Basil. It develops rapidly, and is generally preferred to all other sorts by market gardeners in the south of France.

Purple Bush Basil.—A plant of a deep violet colour in all its parts, except the flowers, which are of a lilac-white. It forms a small, very compact, bushy, and leafy clump.

Compact Purple Bush Basil.—A dwarf form of the Purple Bush Basil; very bushy and compact, and covered with small purplish bronzy leaves, borne on numerous threadlike stems. It is specially suitable for pot cultivation.

East Indian, or **Tree Basil** (*Ocymum gratissimum*, L.).—The plant which is commonly found cultivated under the name of Tree Basil does not appear to be the true *Ocymum gratissimum*, L., but rather *O. suave*, Willd. It is an annual, with an upright stem, branching from the base, and forming a pyramidal bush from 20 in. to 2 ft. high, and from 1 ft. to 16 in. in its greatest diameter. Leaves oblong, pointed, toothed; flowers lilac, in irregular spikes at the ends of the branches. The plant has an agreeable perfume, but it is late-growing and more suited for a warm climate.

THE COMMON OR BROAD BEAN

Faba vulgaris, Mill. ; *Vicia Faba*, L. *Leguminosæ.*

French, Fève, Gourgane. *German*, Garten-Bohne, Puff-Bohne. *Flemish*, Platte Boon. *Dutch*, Tuin Boon. *Danish*, Valske bonner. *Italian*, Fava. *Spanish*, Haba. *Portuguese*, Fava.

Native of the East.—Annual.—This plant has been cultivated, so far as we are able to learn, from the earliest ages, the large size and alimentary properties of its seeds having drawn attention to it and brought it into culture at some remote period of antiquity. Stem erect, hollow, quadrangular ; leaves alternate compound, pinnated, without any odd one, and with broad oval leaflets of a glaucous or ashy green colour. Flowers axillary in short bunches of two to eight, coloured white and black, sometimes tinged purple. Pods erect or curved back, broad, green, often flattened, lined with a kind of felt or down, and containing from three to eight seeds variable in shape and colour. The pods are black and brittle at maturity. As the size of the seeds varies very much in the different kinds, we shall always mention it in the description of each variety. In all the kinds the germinating power continues for six years at least.

CULTURE.—Beans are usually sown, where they are to remain, about the end of February or the beginning of March. They like a rich, slightly humid, and well-manured soil, but they can be grown in almost any kind of ground. Many gardeners are in the habit of nipping off the tops of the plants when they are coming into flower ; but, as far as we can judge, this practice is more effectual in preventing the plants from being attacked by *aphides* than in inducing an earlier and more abundant crop. It is a good plan, whenever it can be done, to run the hoe a few times through the drills. There is seldom any occasion for watering, as the crop is generally gathered before this is required.

Beans may also be sown in a frame in January, and planted out about a month afterwards. It is also not impossible, in the climate of Paris, to grow Beans after the winter mode of culture which is universally practised all through the south of Europe. According to this mode, a sowing is made at the end of October or the beginning of November in a position with a south aspect and well-drained soil, and the young plants are sheltered during the winter by placing frames over them. Instead of frames, we have sometimes seen hoops of casks stuck into the ground across the beds, so as to form an arched support for straw mats, which were spread over them in very frosty weather. This mode of culture is particularly well suited for dwarf or half-dwarf varieties. The plants which have been pushed on in this way are in full bearing three weeks or a month earlier than those which were not sown until spring.

In English gardens, years ago, it was the practice to sow Broad Beans in October, November, and December for the earliest crops, but this is now seldom done; the plants are generally raised in pots, boxes, or frames, and afterwards transplanted to the open ground. This is undoubtedly the best plan, as the ground that would otherwise be occupied by the seed can be ridged or roughly dug, and exposed to the weather to get pulverised and freed from slugs, etc. By adopting the method of transplantation, fuller and more even rows can also be ensured. The first sowing should be made early in January in a frame or pit from which frost is excluded, or a sowing may be made in heat in February, and gradually hardened off after the plants are up. The plants should be grown stout and strong, and be in readiness for turning out early in March, provided the weather is favourable. A south border, under a wall or hedge, should be chosen for them if possible, and after planting, if planks or thin boards can be placed edgeways on each side of the rows, to protect them from cold winds, all the better. The rows should be planted from 2 to 2½ ft. apart, and the plants in the rows should be 4 or 5 in. apart. This will be found to be room enough for early crops if dwarf varieties be grown. If the weather be favourable throughout the spring, the crop will be fit for use by the middle of June, which is as early as Broad Beans are generally expected to be fit for use. Successional sowings may be made in the open ground in January and February, and the principal sowings should be in March and April. If late crops be required, small sowings may be made as late as July; this is, however, seldom done. In order to obtain late crops some growers, after gathering the produce from the main or summer crops, cut down the plants to within a few inches of the ground, then give them a good watering, and in a few days they throw out young shoots, which eventually furnish a fair crop of late beans, though, of course, not so fine as the previous crop. Others sacrifice part of the summer crops, and cut down the plants just as they are coming into bloom; the produce from these is, of course, finer than that from plants that have previously borne a crop. Either of these ways is, however, preferable to sowing for late crops, inasmuch as the plants are hardier, and, being well rooted, stand the dry weather late in the summer and the cold in the autumn. By this method beans of fair quality may be had up till late in November, unless the weather be unusually severe.

Sowings for successional and main crops may be made on open quarters, or between rows of Spinach or any other crop that will be cleared before the beans get very high; the former, however, is best when ground can be spared. The seed should be sown in rows from 2½ to 3 ft. apart, the beans being placed about 4 or 5 in. apart, and they may either be put in with a blunt dibble, or drills may be drawn for them 2 or 3 in. deep. Previous to sowing main crops, the seed should be soaked in water for a few hours to accelerate vegetation. Earthing-up the young plants is advisable for early crops, for it affords a slight protection to the plants during cold, windy weather; for other crops it is not needed. When the plants show sufficient bloom to produce a good crop, their tops may be picked out in order to enhance the setting of the blooms and development of the

pods. Where tall varieties are grown, some support should be given them to prevent their being broken by the wind. The best support is thick twine tied to strong stakes driven in the ground on each side of the rows. Long, slender sticks, tied to the stakes, lengthways along the rows, will answer, but the plants are apt to get bruised against them when swayed to and fro by the wind.

KINDS.—Although there have recently been many new and valuable additions made to our lists of beans, there are some of the older kinds that still maintain their position. Dwarf kinds are sometimes preferred for the smallness of the beans rendering them more delicate-looking than some of the larger varieties. Of dwarf kinds, Beck's Green Gem and the Dwarf Fan are two of the best; the plants assume a neat, compact habit, are abundant croppers, and good in quality; in this respect, however, Beck's Gem is preferable, on account of its green colour. The taller kinds of Mazagan are not worth growing in comparison with the Long-pods and Windsors; but where small beans are preferred they answer the purpose. Though recommended in every book on the subject, the Mazagan is for us the worst and most useless of its race. The Long-pods are earlier than the Windsors, and are therefore preferable to them for first and second early crops. The Seville Long-pod is a variety of Broad Bean that has been for many years in cultivation on the Continent, especially in Spain, where it has done good service in supplying food during times of war. It well deserves the high commendations bestowed upon it, and ought to be in every good garden. It is a very early variety, with immensely long pods, the points of which reach the ground and seem to prop up the plant. It is rather tender. The variety named Aguadulce is said to be the true variety of this. It is a taller and somewhat stronger grower. The Windsor is most suitable for main or late crops.

SOIL, MULCHING, AND WATERING.—A deep, well-drained, strong loam is most suitable for Broad Beans, with the exception of early crops, when the soil may be of a lighter character. Where the soil is too light, it may be improved by treading it firmly whilst in a dry state, or planting without digging. If the ground in which Beans are to be grown has been manured for previous crops, it will be found sufficiently rich for them, as a very rich soil will produce too luxuriant a growth, which is inimical to the production of pods. During dry weather it is a good plan to give a good mulching of half-rotted manure between the rows of main crops of beans to save watering; but it should be done before the plants are in bloom, in order to keep the roots in a moist condition whilst the blooms are setting, this being highly necessary to the production of large, full pods. Watering is seldom necessary for Broad Beans if grown in a deep soil; where, however, the soil is shallow, it may sometimes be needed, in which case it should be thoroughly done, and afterwards the ground should be mulched.

In London market gardens, when these beans are grown, dry and light soils in warm positions are chosen for early sowings, which consist of the Early Mazagan. Sowings of this kind are made in January and again in February, in rows 2½ ft. apart, running across or obliquely in the borders or quarters. Large sowings of the Long-pod are made in the latter half of February and in March, in rows equally distant as

for Mazagans, but with less particularity as regards the way in which they run, the position of the quarter, or the quality of the soil which they occupy. The Broad Windsor, which forms the principal crop, is generally sown in March. The Green Broad Windsor is preferred by consumers; therefore market gardeners generally grow this sort for the main crop. Some cultivators grow beans for seeding purposes, and in this case about one-half or two-thirds of the pods, consisting of the earliest formed, are picked off for marketing in a green or usable condition, the remainder being left to ripen. If all were left the seeds would not be so large, plump, or heavy as when the pods are thus thinned out. *

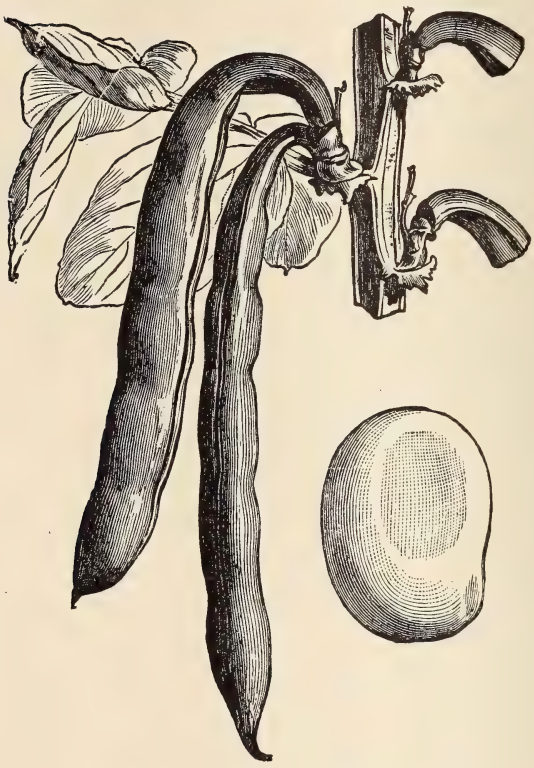
USES.—The seeds, or beans, are eaten boiled, both in the green and dried state. In the south of France the young pods are sometimes boiled and eaten. Broad Beans are not thought so much of in private gardens as Kidney Beans, but by the poorer classes they are much grown. Generally they are not considered a remunerative crop, inasmuch as they do not continue long in bearing. The green-seeded varieties are usually preferred to the white ones, because they retain their green appearance when cooked, whilst the white ones become dark brown. The Bean suffers from the usual and bad practice of allowing the pods to become old and hard before they are used. It is an excellent vegetable when gathered at the right time and properly cooked, and as it is wholly distinct in flavour from any form of Kidney or Runner Bean, it deserves more attention both from the gardener and the good cook. Beans are often gathered for table before they have attained half their size; but this is not advisable, as they sometimes taste bitter when so small. The best-flavoured beans are those that are full-grown but young. If any be required for soup, a row may remain until they become black-eyed. When gathering for exhibition, choose young, long, straight, and shapely pods, as nearly alike as possible, and the more beans they contain the better.

Large Common Field Bean.—Stem quadrangular, erect, about 2½ ft. high, and almost always tinged with red; leaves usually consisting of four or five oval gray-green leaflets. At the base of each leaf, the stem is encircled, for about two-thirds of its circumference, by two broad, toothed, sheathing stipules marked with a blackish spot. Flowers, five to eight in number, in clusters, the first of which commences at the fifth or sixth leaf from the base of the stem; they are pretty large, white, marked on the standard with dark-brown streaks, and with a spot of velvety black on each of the wings. Pods often two or three together, sometimes curved when fully grown, or becoming pendent from their weight, at other times remaining quite erect. They are over 1 in. broad, and from 5 to 6 in. long, and contain from two to four very large seeds which are longer than broad.

* The Bean Aphis Disease, see p. 776.

There are numerous sub-varieties of this Bean: one of them is well known in the trade as the Large Sicily Field Bean. It is a little dwarfer, and more yellow in the foliage, and decidedly earlier than the variety from Northern France.

Seville Long-pod Bean.—Stem quadrangular, erect, 2 to 2½ ft. high, not very stout, sometimes quite green, and sometimes slightly tinged with red. The foliage is very clearly distinguished from that of other varieties by its lighter shade of green, and by the more elongated shape of the leaflets. The flowers in each cluster are not very numerous, usually from two to four, and sometimes there is even only one; the standard is green-white, longer than broad, and remains folded in the centre, even when the flower is fully blown. This peculiarity gives the flowers the appearance of being longer and narrower in this variety than in any other, and they have hardly any tinge of red or violet. The first cluster of flowers usually appears in the axil of the seventh leaf from the base of the stem. Pods something over ½ in. broad, and from 8 in. to 1 ft. long, either solitary or in pairs, and soon becoming pendent with their weight. They contain from four to eight seeds each, resembling those of the Large Common Field Bean, but generally a little smaller. This is an early variety, but not so hardy as the preceding one; its pods are, however, considerably longer.



Seville Long-pod Bean (pods ⅓ natural size).

Aguadulce Long-podded Bean.—This fine Bean, with its immense pods nearly 2 in. wide and 14 to 16 in. long, is not,

properly speaking, a distinct variety, but is the real Seville Long-pod in the highest state of development. As usual, however, the number of the pods is, in these plants, in inverse ratio to their increased size, and while the Large Common Field Bean or the

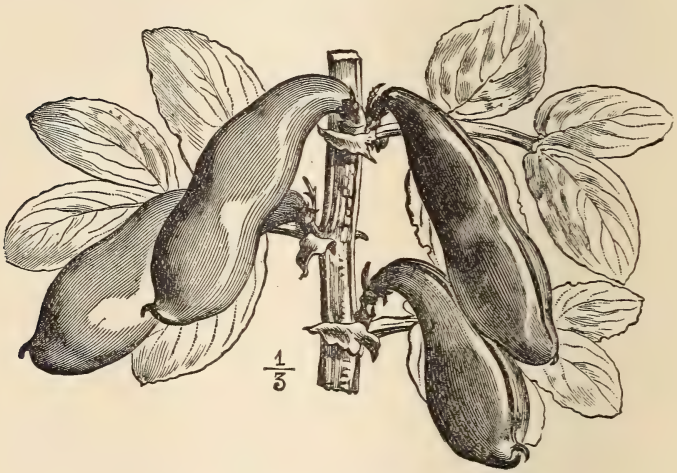
Extra Long-podded Aguadulce Bean (pods ⅓ natural size).

Broad Windsor may have ten to fifteen pods on a stem, it is a rare occurrence to find a stem of the Aguadulce Bean bearing more than three or four well-grown pods.

Perfection Bean.—Vigorous, tall, with stout stem and intense green leaves; pods long, resembling, without equalling, those

of the Seville Bean. While the Seville variety is rather delicate, the Perfection Bean is hardy enough for the climate of Northern France. It may be sown like the Common Field Bean, either in spring or in the autumn, with some protection during the winter.

Broad Windsor Bean.—Stem very stout, quadrangular, erect, 2 ft. 7 in. to 3 ft. 3 in. high, of a reddish or bronzy tinge, which extends to the leaf-stalks, and is deeper than the similar coloration of the stalks of the Large Common Field Bean. Leaves large, round-oval, rather glaucous green. Flowers of medium size, resembling those of the Large Common Field Bean, but not more than from four to six in a cluster, and having a reddish or violet-



Broad Windsor Bean ($\frac{1}{3}$ natural size).

coloured calyx. In this variety the first cluster of flowers does not commence before the eighth or tenth leaf from the base of the stem. Pods solitary or in pairs, almost always curved, and usually very broad towards the end ; they seldom contain more than two or three well-grown seeds. The seeds are very broad, with an almost regularly rounded outline.

Green Windsor Bean.—This differs from the preceding kind only in the colour of its seeds, which, even when ripe, remain of a deep green colour. Windsor Beans are very strong-growing and productive varieties, but somewhat late, which is a serious drawback in dry climates, where Beans are exposed to the attacks of rust and *aphides*.

Small July Bean.—The general appearance of this plant very much resembles that of the Large Common Field Bean. Stems quadrangular, very erect, reddish, attaining a height of about

2½ ft.; leaves gray, with round-oval leaflets; flowers red on the calyx and at the base of the standard, and with well-marked black spots on the wings, four to six in a cluster, the first cluster appearing in the axil of the fifth or sixth leaf; pods erect, often three or four together, nearly cylindrical, and not much thicker than one's finger. They usually contain three or four seeds each, which are elongated, thickish, and not flattened at the sides, like those of the preceding kinds. The July Bean is a hardy kind, and less affected by hot, dry weather than either the Windsor Bean or the Large Common Field Bean, and, notwithstanding the comparatively small size of its seeds, it yields almost as heavy a crop as either of those kinds; for, although its pods are shorter and narrower than those of the large-seeded varieties, they are produced in far greater numbers, and the seeds are, at the same time, very uniformly well grown and well filled.

Small July Bean.

Dwarf Fan, or Cluster, Bean.—A plant growing 14 to 16 in. high, with a quadrangular stem tinged with brownish-red or copper colour, and rather slender, but stiff and strong leaves, ashy-green, with rather small, oval-elongated, pointed leaflets. Flowers small, four to six in a cluster, with a slightly reddish calyx, and the standard more or less purple at the base. The first flowers come in the axil of about the sixth leaf from the base of the stem. The pods are erect, in twos or threes, each containing from two to four square-sided, bulging seeds, of the same colour as those of the Large Common Field Bean.

Beck's Dwarf Green Gem Bean.—A very compact-growing variety, much dwarfer than the preceding kind, being only 1 ft. or 14 in. high. Stem stiff, green, or slightly tinged with red; leaves very closely set and arranged like a fan on each side of the stem; leaflets oval, rather pointed, glaucous green; flowers small, with a

purple tinge at the base of the standard; pods small but numerous, about the size of the little finger, each containing three or four dark green, very full and rounded seeds, which are not much larger than a good-sized Horse Bean. Both the preceding kind and this one in particular are especially well suited for forcing in a frame. Although dwarf, they are great bearers, and even in the open air will yield a good crop without the drawback of throwing too much shade on other plants growing near them, which the taller-growing kinds of Beans sometimes do.

Dwarf Fan, or Cluster, Bean (pods ⅓ natural size).

The **Very Dwarf Scarlet Bean** is a small and very early variety, but not very productive. It has erect, slender pods, about the size of the little finger, each generally containing two or three oblong seeds of a dark brown colour.

Early Mazagan Bean.—Under this name are cultivated several kinds, which are certainly distinct from one another, all of them small-seeded varieties, but varying in height and earliness. They usually produce numerous erect, very slightly flattened pods, each containing three or four seeds intermediate in size between that of the July Bean and a large Horse Bean.

There are two other varieties: one with pure white and the other with red flowers. They are sometimes cultivated, but are of no great merit. There is also a Broad Bean with yellow pods, like those of the Butter Beans, but unfit for use, and the plant is a mere curiosity.

KIDNEY BEAN, or FRENCH BEAN

Phaseolus vulgaris, L. *Leguminosæ.*

French, Haricot, Phaséole. *German*, Bohne. *Flemish* and *Dutch*, Boon. *Danish*, Havebonner. *Italian*, Fagiuolo. *Spanish*, Habichuela, Judia, Frijol. *Portuguese*, Feijao.

Native of South America.—Annual.—A plant of rapid growth, flowering and seeding soon after it is sown. Stem slender, twining,

usually channelled or angular, rough to the touch, always twining in the direction of from right to left (but there are several dwarf varieties, with stiff stems, which do not require any support). Leaves large, composed of three triangular leaflets, which have the angles at the base rounded, are rough on the surface, and of various shapes and sizes. The flowers are produced in the axils of the leaves, in clusters containing from two to eight flowers each. They resemble other papilionaceous flowers, but are rather irregular in shape, the petals being often twisted in an unsymmetrical manner, and the keel especially being generally reduced to two small blades which are more or less convex and non-adherent to each other. Hence it results that the pistil is not so completely covered as it is in most other papilionaceous flowers, and consequently spontaneous crossing very frequently occurs amongst the varieties of this plant. The pods and seeds of the different kinds vary much in shape, colour, size, and substance.

We shall describe each variety separately, merely observing here that the difference in the texture of the pods has led to the division of the plants into two classes, viz. the Tough-podded, the pods of which become hard and leathery when ripe, and the Edible-podded, the pods of which never become stringy, even when dried. The germinating power of the seeds continues for three years.

The Kidney Bean does not appear to have been known to the ancients; for, although Columella and Virgil mention a plant under the name of *Phaseolus* or *Phaselus*, this could not have been our Kidney Bean, which, even in Italy, does not accommodate itself to being sown in autumn, like the *Phaseolus* of these authors. It is certain that the Kidney Bean is a native of a warm climate, and in the absence of positive documentary proofs of its original habitat and the time of its introduction into cultivation, there are good grounds for assenting to the opinion of Monsieur Alph. de Candolle, that it was originally a native of South America, and was introduced into Europe in the sixteenth century. The old French writers on kitchen-garden subjects do not mention it before that period, and give it but scant notice in comparison with that which they bestow on Peas and Garden Beans. Since their time, however, and chiefly owing to the power which the plant possesses of producing numerous varieties, its culture has acquired a considerable amount of importance. In France, every year, many millions of kilogrammes of the seeds are harvested (the kilogramme is equal to $2\frac{1}{5}$ lb. avoirdupois); and, besides this, considerable quantities are imported, and form a large part of the national food. They contain more *azote* or nitrogen than almost any other vegetable, and their chemical composition in some degree approaches that of the flesh of animals.

CULTURE.—The Kidney Bean is very sensitive of cold, and

will not grow well or vigorously in a temperature which is not over 50° Fahr. It is destroyed by one or two degrees of frost. It likes a rich, light, well-drained soil, with which manure has been thoroughly well mixed, and it may be observed that it does better in soil which has been well manured in the previous year than in newly manured ground. This remark applies to field cultivation, as well as to that of the kitchen-garden.

We will now rapidly review the various modes of cultivation under which Kidney Beans are grown. As they delight in fresh air and light, they are seldom sown in hot-beds for a first crop before February (they are sometimes so sown in December or January, but it is not unusual to see plants which are raised at that time pine away or damp off). The seed is sown in a frame, placed on a bed of fresh manure, which is covered with good soil or leaf-mould to the depth of 5 or 6 in. Air should be regularly given whenever the weather permits, taking care at the same time not to bring down the temperature to a degree that would be injurious. As the plants increase in size, all sickly or discoloured leaves should be removed, as well as any of the healthy ones which give too much shade or hinder the free circulation of the air.

The first crop may be gathered eight or ten weeks after sowing, and sometimes sooner when the weather is favourable. Sowings on hot-beds may be continued until March. The plants so raised in April are usually planted out in the open air; and, in fact, plants raised in hot-beds may be always advantageously pricked out. Some gardeners keep their forced Flageolet Beans growing, and after taking from them a crop of green pods, leave some to ripen, from which they obtain another crop of fresh ripe Beans in May, when they command a high price. The varieties which are generally used for this purpose are the Dwarf Dutch Kidney Bean, which is much the same as the White Flageolet; the Early Étampes Flageolet, and the Scalloped-leaved Flageolet. The Black Belgian Kidney Bean and the Yellow Chalandray are also well adapted for forcing.

The time for making a sowing, in the open air, of Kidney Beans, the pods of which are intended to be gathered in the green state, commences as soon as all danger of frost is over, and the soil has become sufficiently warm. Successional sowings may be made from April to August. The seed may be sown either in holes made with the dibble, or in drills, according as the kinds sown vary in vigour and growth. This mode of culture requires hardly any attention except the use of the hoe and watering in hot weather. Some gardeners are in the habit of earthing-up the plants at the first hoeing, and this generally appears to be productive of good results; the flowers come into bloom continuously, and the growth of the young pods is very rapid, so that gatherings

may be made from the same drills every two or three days, and if the plants which were latest sown are protected from frost, green pods may be gathered in the open air up to the end of October. It is usually the tough-podded kinds which are grown for use in the green state, and the preference is given to those varieties in which the young pods are long, straight, very green, and rather cylindrical than flattish in shape. The kinds which are chiefly grown about Paris for this purpose are Swiss Kidney Beans, especially the Gray Swiss and the Black Flageolet.

In gardens, hardly any kinds are grown for the seeds or beans except the White or Green Flageolets, and they are cultivated just in the same way as the kinds of which the pods are used in the green state. The pods are gathered when they begin to grow yellow, and are no longer brittle. Dry seeds are obtained by allowing them to ripen thoroughly, but some may be preserved tender for winter use by taking up the plants a short time before the pods are ripe, drying them in the shade, and then packing them closely together in a dry place, when the leaves will gradually fall off, while the pods continue attached, and the seeds will remain tender and possess nearly the same flavour as if they had been just newly gathered.

Tall-growing Kidney Beans, whether grown for the sake of the green pods or the seeds, are treated in exactly the same way as those already described, except that they require to be supplied with poles or branches to support their climbing stems. These supports, which are of different materials in different districts, vary in height from 5 to nearly 10 ft., according to the height of the variety grown. Those used about Paris consist chiefly of Chestnut loppings, with few branches or none, and when staked they are usually inclined, so that two rows of stakes meet at the top. The object of this arrangement is to make the rows firmer, and better able to resist high winds. Sometimes, for greater security, every two opposite stakes are tied together near the top, thus forming a series of gables, which are fastened to poles laid lengthways in the forks, and, in this way, although it may seem a little troublesome, a structure of great strength and stability is obtained.

Though we by no means make such good use of the Kidney Bean in its many and valuable dried forms as the French do, its culture in Britain is of the highest importance, and we look to its being much more so in the future, when the value of the many kinds described in this book is generally known.

Sowing and Culture Out-of-doors.—An early sowing is generally made, in order to be able to pick Kidney Beans before it is possible to have those of the Scarlet Runner type in bearing; but as soon as these come in, French Beans too often are almost lost sight of. For small gardens the French Bean is invaluable as a summer vegetable, being easily

grown, many kinds requiring no stakes, and being one of the most remunerative of vegetable crops. It may be had out-of-doors both earlier and later in the season than the taller-growing kinds, owing to its dwarf habit adapting itself to any situation—as, for instance, under hedges or walls, or other sheltered positions; it also comes into bearing much more quickly than Runners.

Where French Beans are grown in the open air without protection, it is impossible to have them fit to gather before the latter end of June or the beginning of July, unless it be indeed an exceptionally favourable season. Where, however, they are sown in a warm, dry situation, and somewhat protected from cold winds and late frosts, they may be had fit for table during the second and third weeks in June. Where it is desirable to have Beans out-of-doors as early in the season as possible, it is a good plan to sow thickly under hand-lights in a warm corner, and then transplant when the plants have made the first pair of rough leaves. After preparing the ground in which they are to be planted, which should be the warmest, driest, and most sheltered available, they may be carefully lifted with as much soil adhering to the roots as possible, and planted in rows 1½ or 2 ft. apart, or in patches, whichever is most practicable; in either case the plants should be about 6 in. apart. If the planting be done early in the day, they may receive a gentle watering to settle the soil round the roots; if otherwise, it will be better to leave them unwatered until the next morning. All possible protection should then be given them; if hand-lights be plentiful they are the best, in which case planting in patches should be practised, as the lights can be more easily placed over them; but small twigs of Laurel or Fir fixed neatly round them answer the purpose in the absence of anything better. Rough hay-bands stretched lengthways over the rows, about 6 or 8 in. from the ground, and firmly secured to stout stakes driven in the ground at each end of the rows, may be employed with advantage. A rough frame, made with sticks driven in the ground and others tied across them to admit of mats, straw hurdles, or any other protecting material being laid upon them at night, is also useful; but whatever is used to protect them, care must be taken so to place it as to avoid draughts as much as possible. Sowings for this purpose may be made in the beginning of April. If the weather be favourable, the ground in which early Beans are to be grown should be deeply dug and left rather rough. The next day, when the sun is going down, the ground should be again turned over with a fork, in order to turn the warm soil underneath and expose the cold to the next day's sun. If this can be done two or three days consecutively, a great advantage will be gained. The last time on which the soil is moved it should be made fine on the top, to prevent the under-soil again becoming cold.

When the seed is sown where it is to remain, drills may be drawn with a hoe, 2 ft. apart and 2 in. deep, and sufficiently wide to admit of two rows of Beans being placed 3 or 4 in. apart. The distance from bean to bean in the rows is usually 8 or 9 inches. Where seed is no object, they may be sown much thicker, and thinned out to the required distances apart, after

they are up, by removing the weakest plants. In any case, a few extra seeds should be thrown in at the ends of the rows to provide for filling up blanks, which often occur in early crops when the ground is cold and wet. The earliest sowing out-of-doors should be made the second or third week in April, if the weather be favourable, otherwise it is better to wait a little longer. It is not advisable to plant very largely for early crops, unless they are wanted in quantity; it will be found better to make two or three small sowings at intervals of a week or ten days during April; after that the principal or main sowings may be made until the middle of June, after which time make a few smaller sowings for autumn use. The last sowing should not be later than the end of July, unless protection can be afforded the plants in the autumn. For principal crops the plants should be thinned out to 9 in. or 1 ft. apart in the row, the rows being $2\frac{1}{2}$ or 3 ft. asunder, according to the varieties grown.

Earthing-up the row is a point that has been much disputed, some growers being of opinion that it is beneficial, while others think the reverse. For early crops we should, however, strongly recommend earthing-up, as it has a tendency to keep the soil around the roots in a drier, and consequently a warmer, state than it otherwise would be; for the main crops, however, we would recommend rather deeper planting, and heavy mulchings in dry weather in preference to earthing-up. Stopping the points of the shoots is practised by some growers; it is, however, immaterial for general crops, but in the case of early Beans and those grown under glass it is advantageous.

Soil.—French Beans like a light, rich, sweet soil; therefore if the ground does not already possess these qualities, good rotten manure or leaf-mould should be added. If worms abound, a good dressing of soot or lime should be given, and if this can be done in the winter, and the ground thrown into ridges or roughly dug, it will be all the better. For pots and beds under glass the soil should consist of three-quarters light turfy loam, and one-quarter decomposed manure or leaf-mould. Soil in which Cucumbers have recently been growing will generally answer well for Beans; in all cases a sprinkling of soot amongst it will be found beneficial. We have seen trimmings from the edgings of walks, chopped up and mixed with fresh horse-droppings, used for pot culture with the very best results.

Mulching and Watering.—A good mulching of seaweed or half-rotted manure from old linings, or litter from Vine borders, applied between the rows of all kinds of Kidney Beans that are grown out-of-doors, will be found beneficial in keeping the soil about the roots in a moist condition, and in promoting a free and luxuriant growth, which is highly necessary to the production of long supplies of fine, tender, and juicy Beans. Copious waterings at the roots will be necessary for all kinds of Beans, wherever they are grown, when they are coming into flower, if the weather be dry—otherwise, instead of the blooms setting, they will fall off. Manure-water may also be advantageously applied after they are set, but not before, as it promotes so much growth, which is inimical to bearing. Guano-water may be given to those grown in pots with advantage; but it is no better than good manure-water from the stable-yard,

or that made from cow manure. Where, however, the latter is used, a little lime should be previously dissolved in it, otherwise it has a tendency to make the soil sour and breed worms. Water in all cases should be applied in a tepid state; and avoid pouring it close to the bases of the stems, as they may be injured by so doing.

Culture in Pits and Frames.—The method to be adopted for growing Beans under glass must necessarily depend upon the nature of the structures in which they are to be grown. Where only cold-pits and frames are employed Beans cannot, of course, be obtained during the winter months, but by a little attention and skill they may be had very late in the autumn, and much earlier in the spring than they can be obtained in the open air. If heating material, such as stable litter and leaves, be plentiful, sowings may be made in pits or frames early in March. If pits be used, they should be filled up with heating material to within 2 ft. of the glass, firmly treading it down as the work proceeds. This done, a layer of rotten manure or leaf-mould may be spread over the litter to the thickness of 3 or 4 in.; 6 or 8 in. of soil may then be placed on the top, the lights put on and allowed to remain until the soil is found to have got warm, when the beans may be put in rather thickly, eventually thinning out so as to leave the plants 6 in. apart each way. If the soil be dry, watering will be necessary, but too much moisture must be avoided at this season of the year. If a lining of warm manure can be put round the pit it will be beneficial to the growth of the plants. A thick covering will be necessary at night to protect the plants from frost. Where wooden frames or boxes are used, a good bed of leaves and litter should be made, and the box should be placed upon it, building the lining up round the box to the level of the lights, as is done in the case of Cucumbers and Melons. If treated afterwards as recommended for pits, the plants will grow rapidly —*i.e.* if the weather be at all genial. When they have made two joints beyond the seed-leaves, the plants may be pricked out, in order to keep them dwarf and sturdy, and cause them to throw out stronger side-shoots than they otherwise would do. If a few small twigs be stuck in the soil between the plants, they will not be so liable to get broken. Abundance of air will be necessary when the plants are well established, but it must be given with care, as a rush of cold air suddenly admitted would cause the tender foliage to shrivel, and render the plants worthless. If it be found that too much steam accumulates in the frame during the night, it will be necessary to leave a "crack" of air on. Beans may be obtained in this way by the end of May or beginning of June, and, if properly treated, will yield a fair supply until the early outdoor crops come into use. If, however, there be convenience, another sowing may be made in the same way a fortnight later, in order to ensure a supply in the event of any disaster befalling the first outdoor crop.

Some growers prefer raising the plants in pots or boxes and transplanting them into frames, and where time can be spared this plan is not without advantages; others prefer growing them entirely in pots, and plunging them in the pits and frames. Thus managed, they come into bearing rather sooner, but they do not generally last so long, neither is the produce so fine as

from those planted out. Where there are pits heated by flues or hot-water pipes, good Beans may be produced throughout the winter by adopting the same mode of culture as that recommended in the case of cold-pits, with the exception that linings will be unnecessary, neither will bottom heat be needed; but where it is not used, growing in pots placed upon boards near the glass is preferable to planting out, as the roots are not then surrounded by such a bulk of cold soil. In order to prolong the season, a sowing may be made in August in cold-pits or frames; those lately cleared of Melons or Cucumbers will answer perfectly. It is a good plan, before sowing, to choose a fine, sunny day, and give the soil a good soaking of water, and to wash well all the wood or brickwork with a syringe, after which close the lights and let the sun have full power on the glass; this will quickly put an end to insects. After sowing, the lights may be left off night and day, until the coldness of the weather necessitates their being put on. A good warm covering should be afforded during cold nights. By this means a good supply of Beans may be had until late in November, unless the weather be very severe. For this crop stopping the shoots is unnecessary, inasmuch as the plants will continue longer in bearing if left undisturbed.

Forcing Kidney Beans.—Forcing Kidney Beans in November, December, and January is not easy work, as unless the house in which they are growing is light, airy, and well warmed, the crop can never be a profitable one. In badly heated damp structures Kidney Beans may be induced to grow, and even bloom, but very few pods will be formed. Warm air alone suits them when in flower during the shortest days, and where this cannot be given freely forcing had better be deferred until February. When the days are lengthening and brightening, forcing is easy. I have grown them in beds, in pits, in wooden frames, in boxes, and in pots, and for convenience I prefer and recommend the latter. The seeds may be sown in 3 or 4 in. pots. These should have a few leaves put into the bottom of each; then fill them half-way up with a mixture of sand, loam, and leaf-soil in the proportion of one part of the first and last to two of the loam. When all have been half filled and the soil made firm, six or eight seeds should be put into each; then cover them over with more soil.

As soon as sowing has been finished the whole should be placed in a house or pit, where the temperature ranges from 60° to 70°. Do not give any water until the growths are seen pushing through the soil; then never let them suffer from want of it. When the young plants have attained a height of 4 in., they should be put into their fruiting pots. These should be 8 or 9 in. ones, and to begin with they should be properly drained; over the drainage place a layer of leaves or rough pieces of soil. The mixture of soil this time should be substantial; no sand or leaf-soil need form part of it; loam and half-decayed manure should be the sole ingredients. Old Mushroom-bed manure answers well for this purpose, and we prefer it to any other.

The roots should not be disturbed when taken out of the small pots, and three or four of the small potfuls may be put together in one of a larger size. One hundred pots of seedlings may thus be reduced to thirty. Firm potting induces

robust and fruitful growth. When potted, they should be again placed in a genial atmosphere, in which they will grow on rapidly and be in bloom from five to six weeks after sowing. Then it will take the pods about a fortnight to swell up, and the crop will be ready for the table in about eight weeks after sowing. As the pots fill with roots, large quantities of water must be given them, and frequent syringing as well, as having the atmosphere in which they are growing humid will prevent the attacks of insects. Red spider and thrips are very fond of indoor Kidney Beans, but both may be checked by water. When potted in good soil, manure-water will not be required until the first pods have been formed; then it may be given them in quantity so long as they continue to bear. Sowings made every three weeks until the middle of April will keep up a constant supply of fine fresh pods until those sown outside come in.

Those who wish to keep up a constant supply of forced Beans should sow a quantity every fortnight, beginning in September. We have kept up a fair supply by sowing five dozen potfuls at a time, but this, of course, must be done according to the demand. At times we have placed only one of the small potfuls of young plants in the 8 in. one, but where space was limited we have put three small potfuls into this size. When this can be conveniently done, it is a profitable way of growing Beans, as a great many more are secured from the pots with the most plants than from the others, and the space required for both is about the same.

When in bloom the flowers should be kept as dry as possible, as the fruit forms with more certainty than when the blooms are damp. We never allow any of the growths to fall over the sides of the pots, as this checks them; but when any of them are so tall or weak as not to be able to stand without support, pieces of birch from old brooms are put in to hold them up. As soon as any of the pods become large enough to gather, they should be removed from the plants at once, as there is nothing so much against the production of a long succession of pods from the same plants as allowing some of the first-formed pods to become old.—J. M.

Kidney Beans to Force.—It was generally supposed that the best forcing Beans were Newington Wonder, Sir Joseph Paxton, Early Prolific, and Osborn's New Early Forcing. Mr. R. Gilbert then took to forcing Canadian Wonder, and it is likely that a great many more kinds might easily be forced. Amongst the French varieties, the most generally grown for that purpose are Triumph of the Frames, Étampes, Black Prince, Chalandray.

Culture in Market Gardens.

When Peas and Broad Beans begin to get comparatively scarce, French Beans are always welcomed in the London markets. They always command a sale, provided they are good and fresh, and overstocking the market with them is almost a thing unknown; but when large quantities of them are introduced prices are of course affected. Under any conditions, however, and all through the summer, a good crop of Beans is a profitable one, and where soil and situation are at all suitable, market growers cultivate French Beans in large quantities. The principal kinds grown are the Newington Wonder and

Long-podded Negro, which, although old varieties, are reckoned to be the best for the market. Their productive qualities are great, for when well attended to as regards timely picking of the pods, they continue fresh, vigorous, and fruitful for a long time, and their pods, as a rule, are less apt to turn tough and unusable with age than is the case with some varieties. The Black Belgian has also found its way into the market-gardens; it is a good, dwarf, early sort, much like the Negro, of which it is considered to be a variety. It is very useful for late sowings and for early frame work. Some growers prefer the Newington Wonder to all other sorts; it is a very prolific dwarf-growing kind. Other growers prefer the Negro, which they grow in frames, for their earliest, main, and latest crops; but most of them also grow the Newington Wonder. The Canadian Wonder or Red Flageolet is one which will doubtless be grown largely for market. It is a robust grower, a good cropper, and its pods are nearly as large as those of a Scarlet Runner and of good quality.

Early crops in market gardens are grown in frames, such as have been cleared of Cauliflower and Lettuce plants; the mould in the frames is pointed over with a spade, and the beans are sown in four rows under each light, and about 3 or 4 in. from seed to seed in the row, when the soil is dry. The middle of March is the common time for sowing in frames, and then the sashes are kept close till the seeds have germinated, when they are tilted up a little at the back in favourable weather; but care is always taken to keep them close in the case of cold winds, and to cover them over with mats or litter in the event of frost. As the plants advance they are treated more hardily, but judiciously, according to the weather. After the middle of May, when all fear of frost has passed, the sashes are entirely drawn off throughout the day, if fine, and replaced at night. Whilst growing, plenty of water is given them at the roots, and picking commences about the second or third week in June, or about three weeks sooner than the earliest border crops come into use. A few frames, too, are also frequently occupied by French Beans sown thickly, for the purpose of transplanting thence to the open ground, and to fill any blanks that may exist in the frames in which the sowings for fruiting therein have been made.

The first outdoor crop is usually transplanted from such frames, and the warmest possible position is selected for this purpose; the time for so doing entirely depends on the state of the weather and nature of the ground. If the weather be fine, the soil moderately dry and light, and the position warm and sheltered, the plants are commonly transplanted during the first fortnight of April, but if otherwise, they are delayed a little later. They are then lifted with as much earth adhering to their roots as possible, and are planted in little patches under hand-lights. The usual way is to draw lines 3 ft. apart across the border, others $2\frac{1}{2}$ ft. asunder lengthways, and upon the middle of every little square thus marked place an ordinary hand-light, under which place six or eight plants. If there be not sufficient hand-lights for the whole space to be planted, half-bushel vegetable baskets are inverted over the plants; and, as they are so open to the wind, they are sometimes covered for a time with

mats. As soon as the Beans have got a good hold of the soil and begun to grow, their protection is removed. Great care must be exercised with hand-light Beans, otherwise they are a deceptive crop, and sometimes die off altogether, especially when nursed too tenderly and changed too suddenly, if the ground be cold and wet, and their top covering insufficient. Those grown in frames, and which come into bearing early in June, last in good picking condition for six weeks; and those in warm borders begin to fruit in the last week of June or first week in July, and continue to yield a fair crop for nearly two months in a moderately moist season, if kept closely picked. The first main crop immediately follows the border ones, and, as a rule, lasts the longest. Drought makes them short-lived sometimes, but in rich soils, and warm, moist seasons, the yield is so heavy that it is scarcely possible to pick them as quickly as they grow. Drought, too, induces red spider, with which large fields are sometimes completely overrun; and although this pest is very prejudicial to the health and longevity of the crop, there is no remedy for it.

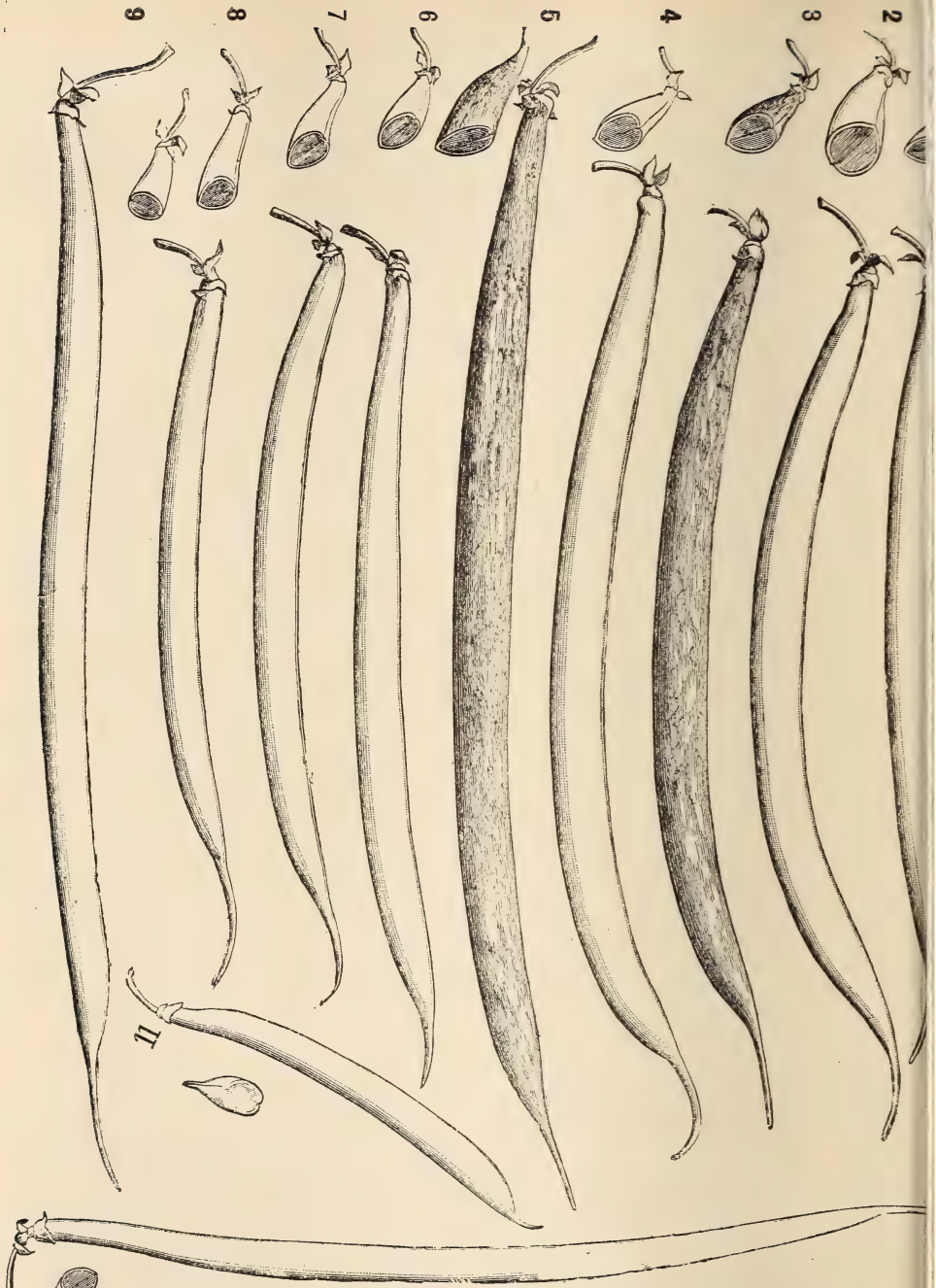
French Beans are gross feeders; they require manurial substances of such a character as can be speedily turned to account; therefore, land that was richly manured for the previous crop—such as for Celery—and which has afterwards again been liberally dressed with short manure, such as that from Mushroom-beds or old Cucumber-pits, suits them perfectly. The crop to succeed such as are grown under hand-lights is planted on a south border, in front of a wall or thick hedge if possible, which is dug over and lined off in cross-rows at 18 in. apart, drawing the lines in the form of seed-furrows with a hoe. Herein are planted Beans 5 in. asunder in the row; they are earthed-up in due time, and, if the weather be favourable, come into bearing three weeks after those grown in frames. Some growers erect barricades of mats in an upright position to stakes driven in the earth, and placed to the windward side of the borders; and they also surround frames containing them, but not covered with sashes, with the same protection to ward off cold and frosty winds.

Out-of-door sowing begins during the first fortnight in April, just as the state of the weather and soil permits, and the warmest available position is selected for the purpose. If the ground be free from all other crops at the time of sowing, there is more need for a sheltered place than if it were cropped. In sowing, the lines are drawn at 2, 2½, and sometimes 3 ft. apart, and the seeds planted about 4 or 5 in. asunder. The earliest crop is often sown in drills drawn between lines of Cauliflowers, Cabbages, or Lettuces. These crops, instead of being injurious to the French Beans when they appear above ground, are very beneficial to them, inasmuch as they protect them from cold winds until they have gained some strength and the weather becomes mild and warm, by which time the bulk of the Cauliflowers will have been removed for market. Even then, however, the Beans do not get all the space to themselves, for no sooner is the earth cleared of the other crop than it is loosened a little between every alternate line, and those spaces replanted with Lettuces or similar crops. Thus one space contains another catch crop while the other is empty; and by means of having this empty space

to walk in, the women can pick two lines of Beans, one on either side of the empty alley, and never disturb the other crops in the alternate alleys. Should the French Beans have come up well, and be nearly ready for picking before the first occupants of the soil are entirely removed, the alleys are not cropped again until they become exhausted. The drills for sowing are drawn in the morning of a fine day and left until the afternoon, when seeds are sown and some earth drawn over them.

The first main sowing is made in the open fields about the second or third week in April, under the same circumstances as that already mentioned, or the field may have been previously planted out with Cos Lettuces in lines 12, 15, or 18 in. apart; between every two lines of these would be sown one of Beans. Along both sides of Asparagus ridges Beans also often find a place. Some growers sow late crops in rows 4 ft. apart, and plant two rows of Coleworts in every intervening alley. Before the seeds appear the soil immediately over the seeds is gone over and slightly loosened with an iron-toothed rake, so as to permit of an easy egress of the seedlings. When sown in bare fields, even though Lettuces be planted amongst them, a little ridge of soil is frequently drawn to the north or windward side of them as an additional protection from cold winds. Whilst the plants are growing they are carefully attended to as regards keeping them clean and hoeing the soil, and when they reach 4 in. in height they are earthed up a little. The catch crops, too, are cleared away as soon as they are ready, in order to give the French Beans every opportunity of a healthy development. Successive sowings are made every fortnight or three weeks, until the end of June, by some, but most of the large growers sow about April 8th and 20th, the first and last week in May, and the first week in July. The last sowing consists of the Negro, and just yields a good crop of young and fine pods before being destroyed by frost; whereas, were they sown a fortnight later, they would be apt to be nipped when coming into bloom.

Gathering is well attended to, for if full-grown pods be allowed to remain too long on the plants they soon cease to bear. The Beans are gathered by women into baskets, which, when full, they carry on their heads to the end of the rows, there to leave them to be carted home, where they are washed to remove the grit. They are then packed into round half-bushel vegetable baskets, which are covered with Rhubarb leaves fastened down with withies, and piled one above another on the waggons that convey them to market three times a week. Most market-gardeners save their own seed, and a piece of the main sowing is generally selected for this purpose. The plants in the rows to be saved for seed are first subjected to two or three pickings for market; then they are left untouched until the beans are fully ripe, when the plants are pulled up by the roots, tied into little bunches, and slung in pairs across a fence or rail to dry. Sometimes, too, the haulm is spread over sashes to dry, and, in the event of wet weather, is strewed under some spare sashes, where it gets well dried without getting wet. They are then housed, and during wintry weather are threshed, cleaned, and stored in rough brown paper or canvas bags, or placed in drawers, or in the corner of a loft, until sowing time arrives.



1. French Bean Black-speckled.
2. ,, ,, Emperor of Russia.
3. ,, ,, Pride of Lyons.
4. ,, ,, Black Prince.
5. ,, ,, Dwarf Parisian.
6. French Bean Marvel of Paris.
7. ,, ,, Black Negro.
8. ,, ,, Black Hermitage.
9. ,, ,, The Shah.
10. ,, ,, Dwarf Lyonnais Long-pod.
11. French Bean Dwarf Prolific.

USES.—The young and tender pods of many kinds are eaten boiled. Every one knows the use which is made in cookery of the seeds or beans, either when dried or when gathered before they are quite ripe, but when the pods can just be opened without difficulty. And lastly, the Edible-podded or *Mange-tout* varieties are used from the time the seeds begin to swell until they are quite ripe. We heartily wish that English housekeepers and gardeners would look into the qualities of many of the fine varieties described in this book. Apart from the greater variety of valuable kinds of the types they know so well, two very valuable series deserve attention —those of which the pods may be eaten when large and mature, and the Flageolet kinds, which are very little used with us. *

TOUGH-PODDED KIDNEY BEANS

French, Haricots à écosser.
Italian, Fagiuoli da sgusciare.

I. TALL-GROWING VARIETIES

Soissons Large Runner Bean.—A plant with a slender green stem, growing 6½ ft. high or something more. Leaves pretty large, at wide intervals from each other; leaflets moderately crimped, rounded at the base, dark green slightly yellow; lower leaves larger than the upper ones; flowers white, passing into yellow; pods green, but turning to yellow when ripe, broad, somewhat curved, and generally irregular in shape, owing to the unequal growth of the seeds, which are seldom more than four in number, and are white, kidney-shaped, and more or less humpy or round-backed; they are nearly 1 in. long, about ½ in. broad, and

Soissons Large Pole Bean.

* Climbing French Beans, see pp. 758, 759.

nearly ¼ in. thick. They are late in ripening. The dried seeds of this variety are highly esteemed for their delicate flavour and the thinness of the skin. The plant is found to succeed in the greatest perfection in its native district, where it most probably enjoys conditions of soil and climate which are specially favourable to it; but, when grown under a warmer sky, it sometimes suffers from the heat—the skin of the seed becomes thickened, and the seed loses its fine quality, and also degenerates in size and colour.

Soissons Green-seeded Pole Bean.—In growth this variety is very much the same as the preceding, and equally vigorous and very productive. Pods long, broad, slightly curved. Seeds thick, kidney-shaped, a little over ¾ in. long and ½ in. broad, less than ¼ in. thick. This variety is remarkable for the green colour of its seeds, as much so as in some of the dwarf Beans, such as the Green Flageolet and the Green Bagnolet; while the crop produced is considerably larger.

White Dutch, Scimitar, or Case-knife Bean (1/12 natural size).

White Dutch, or Scimitar, Bean (*H. Sabre à rames*).—A very vigorous-growing kind, nearly 10 ft. in height. Stem thick and green; leaves very large, deep green, crimped; flowers large, white, fading to nankeen yellow, and forming long clusters; pods straight, sometimes undulating on the sides, 10 in. to 1 ft. long, containing eight or nine seeds each, numerous, produced in succession for a long time, especially when the first have been gathered green; seeds white, glistening, kidney-shaped, very like those of the Large White Runner, but more regular in shape and

one-third less in size, seldom $\frac{3}{5}$ in. in length. They ripen rather late. The young pods may be used as green Haricots. The seed or bean, when used fresh from the pod, is one of the best; it is also very good when dried. This is certainly one of the best varieties; the only objection to it is that it requires very long stakes when growing. The Germans cultivate a great number of sub-varieties of it, characterised chiefly by having broader and straighter pods; but, notwithstanding numerous trials, we have never found any of them to surpass or even equal the variety here described; it is the most tender for use and also the most productive.

White Sallandre Improved Pole Bean.—Height not exceeding 5 ft., but very vigorous growing. Stem stout and branching; leaves broad, crimped, light green more or less striped with darker green; flowers yellowish white. Pods about 6 in. long, $\frac{1}{2}$ in. broad, flat, light green, containing six white elongated seeds, like those of the White Swiss Bean $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, a little over $\frac{1}{3}$ in. broad and about $\frac{1}{4}$ in. thick. This variety, raised in the vicinity of Laon, is one of our best Pole Beans, and very productive; the pods are numerous, very long and well filled.

Large White Liancourt Kidney Bean.—Stem green, slender, tall, reaching a height of from 7 ft. to nearly 10 ft.; leaves large, of a rather dark green, not quite so much crimped as those of the Soissons Bean, the upper ones much smaller than the lower ones; flowers white, turning yellow after impregnation; pods longer and narrower than those of the Soissons Bean, slightly curved, each containing about five or six flat, slightly kidney-shaped seeds, rather irregular in form, like those of the Large White Runner (but of a dull or dead white, while the seeds of the latter variety glisten like porcelain), about $\frac{3}{4}$ in. long, a little over $\frac{1}{4}$ in. broad, and less than $\frac{1}{4}$ in. thick. This is a rather hardy, strong-growing, productive, and half-late variety, and is chiefly grown for the ripe dried seeds.

Chartres Red Kidney Bean.—This kind requires hardly any staking, as the plant is of compact growth and seldom more than 3 or 4 ft. in height. Leaves slightly crimped; flowers white or inclining to yellow, large; pods 4 or 5 in. long, slightly curved, each containing about five or six flat, short seeds, which are often square at one or both ends, of a deep wine-lees-red colour, and having an almost black circle around the *hilum*; their average length is about $\frac{1}{2}$ in., breadth a little over $\frac{1}{4}$ in., and thickness less than $\frac{1}{4}$ in. They ripen early.

Long Scarlet Pole Flageolet Bean.—Contrary to what happens usually, this Pole variety is of more recent introduction than its dwarf form, which has been cultivated and appreciated for a long time. It possesses the same qualities of pod and seed, its gain being to produce on a given surface of soil a much larger crop and for a longer period.

Extra Early Pole Bean.—A variety, not exceeding 5 ft.; leaves large, light green, lightly crimped. Pods straight, full, green, often in bunches of five or six. Seed white, flat, very small. This Bean is remarkable for producing good-sized, serviceable pods at a time when most of the other pole Beans are hardly beginning to flower. It is at this early stage of their development that the pods ought to be used, for they harden quickly and are never altogether free from parchment. The seed, though small when quite dry, may be used in a fresh state, when the pods are turning yellow.

Extra Early Pole Bean.

Round White Rice Runner Kidney Bean.—A variety of moderate height, seldom exceeding 5 ft., and sometimes not much over 4 ft. Stem very slender, light green; leaves medium sized, long, pointed, not much crimped, and of a clear green colour; flowers white; pods green, narrow, very numerous, especially at the lower parts of the stems, where they often grow in clusters of fours or fives, while hardly any are produced near the tops of the stems; seeds five or six in each pod, nearly round, with a very smooth, thin, almost transparent skin, and not much over $\frac{1}{4}$ in. in diameter. This variety presents an appearance so peculiar and so different from that of most other kinds, that it might be readily supposed to be derived from a distinct botanical species, were it not that its flowers exactly resemble those of other Kidney Beans. It branches and spreads more than the majority of tall-growing varieties, forming a clump nearly 2 ft. wide, with weak, slender stems, which do not exhibit much of the climbing character. The seeds are so small and so peculiar in shape that it is difficult at first sight to imagine that they belong to a plant of the same species as the Soissons or Liancourt Beans. However,

as the pods are produced in very great numbers, the plant is productive enough. The dried seeds are of an exceedingly good and delicate quality, with a very thin skin, which seems to dissolve in cooking, on which account they are highly esteemed. The only defect which can be ascribed to the plant is that the pods are very liable to rot in wet seasons, when they trail to the ground before they are quite ripe.

There are many other tall-growing varieties of Kidney Beans in cultivation, of which we shall only mention the following, as being very distinct and of special interest in various respects :—

Harlequin Kidney Bean.—A tall-growing, rather late-ripening kind, with long, crimped leaves. Pods numerous, short, and curved; seeds very flat, oblong, scarcely kidney-shaped, coffee-coloured, and irregularly streaked and furrowed with black lines. It is a hardy and productive variety, and may be often seen in the Central Market at Paris.

Dwarf White Long-pod Kidney Bean.—A plant 4 to 5 ft. high; flowers large, white; pods exceedingly numerous, very straight and long, and nearly cylindrical, of a fine green colour; seed oblong, nearly as thick as broad. This variety, which requires only very short stakes, can be highly recommended for the production of green Haricots.

Tall Early Englefontaine Bean.—A rather tall variety, vigorous, and very early, with some resemblance to the Liancourt Kidney Bean, but ripening much earlier. It is the earliest of the tall Beans.

Soissons Red Kidney Bean.—A tall, rather slender-stemmed variety, not overburdened with leaves. Pods long, slightly curved, and rather narrow; seeds nearly the same shape as those of the White Dutch or Case-knife Bean, and of a brilliant coral colour just before ripening, after which they assume a wine-lees red tint. This handsome kind is tolerably early, but only moderately productive.

Partridge-Eye Kidney Bean.—A plant of medium height, with lank, slender stems, and lilac flowers. Pods short and flat, each containing four or five seeds, which are flat, shortly oval, or almost square, and of a white colour finely streaked with greenish gray. This variety has been a long time in existence, but, being a poor bearer, it is very little grown.

Old Homestead, Kentucky Wonder, Seek-no-Further Bean.—One of the varieties most commonly cultivated in the United States. A very vigorous plant, growing as high as 6½ ft.; early, and very productive. Pods very abundant, long, curved. Seeds slightly flattened, oval, and dark brown.

Southern Prolific Bean.—Much less tall than the last named, with shorter, almost straight pods, and smaller seeds. Also a little later.

Red Speckled Cut Short or **Corn Hill Bean.**—A late variety, with short cylinder-shaped straight pods, the seed almost square, and streaked with red-brown. In the United States it is often sown along with maize, which serves as a support for it.

Saint-Seurin Kidney Bean.—A very vigorous and rapid kind, with large, broad, deep-green leaves, and lilac flowers. Pods very numerous, almost straight, marked when very young with violet streaks; seeds flat, kidney-shaped, salmon marbled and spotted with black. It is hardy, very productive, and early, and is well adapted for rather warm climates.

II.—Dwarf Varieties of Tough-podded Kidney Beans

Dwarf White Flageolet, or **White Canterbury Kidney Bean.**—The best known and most esteemed of the Tough-podded Kidney Beans. The name Flageolet Bean is given to varieties more or less similar to this, and the seeds themselves are known as Flageolet Beans for culinary purposes. It is a low-growing thick-set variety, with a stout stem, not more than 1 ft. or 14 in. high; leaves smooth or slightly pitted, of medium size, and deep-green; flowers white, with a faint tinge of nankeen yellow; pods numerous, rather flat and somewhat curved, and frequently irregular in breadth through the abortion of some of the seeds. These, usually four or five in a pod, are white, flat, and kidney-shaped, nearly $\frac{3}{4}$ in. long, over $\frac{1}{4}$ in. broad, and less than $\frac{1}{4}$ in. thick. In cases where only one variety of Kidney Bean can be cultivated, a better selection cannot be made than this one, for the young pods may be gathered and used as well as the seeds. The seeds are sometimes dried but are best when fresh.

Extra Early Dwarf Étampes Kidney Bean ($\frac{1}{8}$ natural size).

Dwarf White Long-pod Kidney Bean.—More vigorous, with larger leaves and greater length of pods than the preceding. The seed is white when ripe, and somewhat larger than that of the common Flageolet; the young pods are long and thin and very tender.

Extra Early Dwarf Étampes Kidney Bean.—This new variety, which was raised by M. Bonnemain, is a decided improvement on the White Flageolet, and is distinguished

from it in a marked degree by its leaves, which are large, somewhat crimped, and deep green. The flowers, pods, and seeds do not perceptibly differ from those of the White Flageolet, but the plant is earlier by five or six days, and is a truly valuable variety, most probably destined to gradually supersede the other in cultivation. The seeds are white, even when the pods are green.

Nettle-leaved Canterbury Kidney Bean ($\frac{1}{3}$ natural size).

Nettle-leaved Canterbury Kidney Bean.—This variety is very distinct from the Common White Flageolet, and is a dwarf, hardy, early, and productive kind, easily recognised by its leaves, which are small, of a dark, almost black, green, and finely crimped on their entire surface. The small size of this plant renders it very suitable for frame culture, and its hardiness makes it equally good for field cultivation, as it is usually grown about Paris. It ripens nearly at the same time as the White Flageolet, and its chief merit consists in resisting disease and unfavourable weather, and in its being easily distinguished by its foliage from all other varieties.

Matchless Dwarf Bean.—In clumps about 1 ft. in height; stem green, branching; leaves medium-sized, light green, slightly veined and crimped; flowers white. Pods 4 to 6 in. long, flat, produced in pairs, each containing six seeds, which resemble those of the Long White Canterbury Bean, but smaller and marked with two dots near the *hilum*; they are a little over $\frac{1}{2}$ in. long, by about $\frac{1}{4}$ in. broad, and $\frac{1}{4}$ in. thick. An early and prolific variety, to be recommended for the production of young green pods for the table.

Inexhaustible Dwarf Bean.

Inexhaustible Bean.—Quite distinct from all the other dwarf Flageolet Beans, this variety is easily recognised at first sight by the growth of its flowers, which rise in stout bunches above the foliage. The pods are long, green,

narrow, and tender, and are produced in constant succession, becoming the more abundant the more they are picked. The seed is like that of the White Flageolet.

Bonnemain Dwarf Kidney Bean.—This variety was raised some years ago from seed by M. Bonnemain, secretary to the Étampes Horticultural Society, and we class it among the Flageolets because it resembles them in size, earliness, and in having white seeds; but that it is totally distinct from all the other varieties can be seen at a glance. It forms very low-growing, thick-set clumps, with leaves of a pale gray-green and white flowers; pods straight, almost cylindrical, shorter and more slender than those of the Kidney Bean; seeds white, egg-shaped, thicker, and with less of the kidney outline than those of the White Flageolet. They are green until they ripen. The great merit of this variety consists in its unequalled earliness, the seeds being ripe for shelling five or six days sooner than those of the Early Étampes Flageolet, which was at one time considered the earliest of all. We have obtained very satisfactory results from growing the Bonnemain Kidney Bean in the open air, while its small size and great earliness make it most suitable for frame culture. It is certain to become one of the most esteemed varieties for producing an early crop.

Bonnemain Dwarf Kidney Bean (plant, $\frac{1}{8}$; pods, $\frac{1}{4}$; and seed, full natural size).

Long Green-seeded Flageolet Bean.—The first green seeds of the Flageolet Beans may have originated by the mere accident of some one pulling a few pods before their complete maturity and allowing them to dry in the shade. However, it is indisputable that by careful observation and selection the Paris growers have succeeded in obtaining certain strains in which the green coloration of the seed not only exists, but has moreover a tendency to last, given appropriate treatment. We are going to give a description of the more interesting of these strains, all of which are derived more or less directly from the original green-seeded

Flageolet Bean, the pods of which are of a darker colour outside, and the seed being permeated throughout with a larger amount of green colouring matter, which latter is of a more durable nature than is found in any other of the Tough-podded Kidney Beans.

Chevrier Dwarf Flageolet Bean.—A distinct variety, differing from the Green-seeded Flageolet almost as much as that differs from the White Flageolet, so intense is the green colour of the seed. Sent out only a few years ago, it has quickly become very popular among the growers in the vicinity of Paris.

Wonder of France Dwarf Bean.—The Chevrier Bean, like the White Flageolet Bean, has the serious defect of being very much exposed to the attacks of rust. This evil is considerably lessened in some of the later strains, the first of which in date, the Marvel of Paris, is a fine variety with numerous, long, straight, beautiful deep green pods and well-coloured seeds. It differs but little from that of the Chevrier Bean in these characteristics.

Wonder of France Flageolet Bean.

King of the Green Bean.—Of remarkable vigour in growth, and somewhat taller than Wonder of France, though not quite as early. It is a hardy plant, suited for field culture, and wonderfully productive. It is one of the best for the production of dry green Flageolets; for not only is the skin of the seed very thin, but the bushes shed the whole of their foliage as soon as the pods are full and ripe, so that the plants, if pulled up then, may be easily stacked at once.

Dwarf Triumph of the Frames Bean.

Dwarf Flageolet Triumph of the Frames.—Very dwarf and compact, suited for cultivation under glass, not exceeding 8 in. in height. Leaves of average size, pretty smooth; pods very

numerous, round, well filled, containing six to eight seeds each. The seeds are of the Flageolet shape, about ¾ in. long by about half as broad, and about ¼ in. thick. Owing to its small size and great earliness this variety can be recommended for growing in frames for an early crop. The seeds are bright green, and they keep their colour if the pods are pulled at the right moment and dried in the same way as the Chevrier Beans.

Green-seeded Bagnolet Bean.—A very branching dwarf variety, remarkable for its vigorous growth and productiveness. Foliage dark green, very abundant. The tufts are compact, erect, with numerous straight pods of vivid green. The seed is small and very green. Though not as early as Wonder of France, it is much more productive. It is especially suited for producing green pods or *Haricots verts*, of which it produces an enormous quantity. If allowed to ripen the green colour of the seed gives it an increased value in comparison with white and coloured Beans.

Long Yellow, or **Pale Dun, Flageolet Bean.**—A vigorous very dwarf variety, about 18 in. high, with large broad gray-green leaves, somewhat plaited but not much crimped. Flowers white ; pods large, long, straight, and broad, edible as *Haricots verts*, rather pale in colour ; seeds oblong, very slightly kidney-shaped, about ¾ in. long, a little over ¼ in. broad, and about the same in thickness, uniform chamois colour, excepting the *hilum*, which is white, surrounded by a circle of a rather dark-brown. The seeds are commonly eaten fresh, before they are fully grown, and they ripen rather earlier than those of the white-seeded kind. The plant is also much more productive.

Dwarf Long Scarlet Flageolet Kidney Bean.—(American *Red, or Scarlet, Flageolet*).—A vigorous kind, about the same height as the preceding one, but a much darker green, with long, narrow, pointed leaves and rosy-white flowers. Pods long and straight, yielding very good green Haricots ; seeds ¾ in. or more long, over ¼ in. broad, and about ¼ in. thick, straight, or slightly kidney-shaped, nearly cylindrical, and a wine-lees red colour. This variety is one of the hardiest and most productive. It is chiefly grown for its seeds, which are of fine quality when dried. It also produces long straight pods, which are excellent eaten as such.

The *Crimson Wonder* and the *Canadian Wonder* Bean are sub-varieties of this kind, differing from it but slightly by the shape of the seed.

Fame of Vitry Flageolet Bean.—Earlier and smaller in size than the preceding kind, from which it has sprung ; stem light green, between 15 and 16 in. in length ; leaves broad, and pointed ; flowers pale lilac. Pods about 6 in. long, generally solitary, and containing usually six seeds, resembling those of the Long Scarlet Flageolet Bean, but smaller. An early

and prolific variety, to be recommended for the fine green pods (*Haricots verts*) it produces, and which are much appreciated on the market.

Bouscat Early Long-pod Forcing Bean.—In general appearance this variety resembles the Black Negro Bean, but is more vigorous, more productive, and also has longer pods, and the colour of the seed is also different. Plant dwarf, between 11 and 12 in. high; stems vivid green, leaves large, pointed, of a lustrous dark green colour; flowers white. Pods light green, long, cylindrical, produced in pairs or in clusters of three; seed light brown, less than ¾ in. long, about ¼ in. broad, and about as thick. This variety is well suited for forcing under glass, but it succeeds also in the open ground in sheltered places where Beans are sown for an early crop.

Bouscat Early Long-pod Forcing Bean.

Scarlet Flageolet Wax Bean.—A vigorous yet persistently dwarf variety, 16 to 18 in. high. Leaves very large, uncrimped, and light or yellow green; flowers lilac; pods long, broad, straight or slightly curved, quite yellow (like those of the Algerian Kidney Beans), but rather flattened and pointed (like those of the Tough-podded Kidney Beans); seeds almost exactly like those of the Canadian Wonder in shape and colour. This is a very fine and distinct kind, but, unfortunately, its pods are not free from membrane, at least when ripening; but gathered before the seeds are too much grown, they are very tender and fleshy.

Scarlet Flageolet Wax Bean.

Black-blue Seeded Dwarf Bean.—A dwarf, rather late variety; plant erect and vigorous, of good habit, not exceeding 20 in. in height. Stem stout, light green; leaves dark green, smooth,

slightly veined; flowers lilac, in bunches raised above the foliage. Pods very long, flat, light green, about 5 to 7 in. long, a little over ½ in. broad, and less than ¼ in. thick, generally produced in pairs, and containing from six to eight long bluish black seeds. A disease-resisting, productive variety, well suited for growing for the market. Owing to the colour of the seed, it is used exclusively as a Haricot Bean.

Black-blue Seeded Dwarf Bean.

Negro Long-pod, or Black Canterbury, Kidney Bean.—This is a very distinct variety, and one of the best edible-podded varieties. Leaves large, not much crimped, deep green, usually horizontal and not pendent; flowers lilac; pods slender, very straight, and nearly cylindrical. The plant is remarkable for the length of the young pods. The seeds are of moderate size, being between ½ and ¾ in. long, and nearly ¼ in. broad and thick; they are entirely black, on which account they are not used in cookery, and the plant is only grown for the sake of the green pods.

Dwarf Extra Early Black Prince Bean.—A truly dwarf and early variety, compact in growth, with numerous short stems, broad leaves, and a great number of flowers; distinguished by the intense green colour of the whole plant, and especially of the pods, which keep their dark green colour up to complete maturity. The pods are produced in abundance, of medium size; the seed is black, very small, flat, thin, and oblong, it is about ½ in. long, ¼ in. broad, and a little less in thickness. The Black Prince Bean is unexcelled for producing green pods for the table. Its dark green colour proclaims its descent from one of the forms derived from the Green Flageolet

Black Prince Bean.

or the Chevrier Bean. The seed is of less importance in varieties specially grown for their pods, but this origin has had a most favourable influence in imparting to the pods that healthy and agreeable dark green appearance so much valued in the market.

Dwarf Belgian Black Negro Kidney Bean.—A very dwarf early kind, chiefly used for forcing in frames. When grown true to name, it seldom exceeds 10 in. or 1 ft. in height, and forms a small, close, compact tuft or clump. The leaves are medium size, rather pointed, not much crimped, and a pale wan green. Pods straight, very green while young, afterwards slightly streaked with violet; seeds rather small, slightly kidney-shaped, not very flat, and seldom over about ½ in. long, of a fine black colour, with a white *hilum*. Like the preceding variety, owing to the colour of its seeds it is only grown for the green pods.

Dwarf Belgian Kidney Bean (⅛ natural size).

Dwarf Black Hermitage Bean.—A sub-variety of the preceding, having all its characteristics, but slightly taller; the pod is also longer, about 5 in. in length, and the seeds are somewhat larger, but they are the same shape and colour. A variety much appreciated by the growers of Provence.

Chocolate Dwarf Kidney Bean.—Another very dwarf and early kind, with small long leaves, not much crimped, and light green. Flowers lilac; pods rather short, and curved, often to a semicircle; seeds flat, somewhat kidney-shaped, ½ in. or more long, varying from a chamois to deep slaty gray, and often both colours together. This variety is chiefly remarkable for its earliness, and is well adapted for growing under a frame for an early crop of ripe seeds.

The *Comte de Vougy Kidney Bean*, *Mohawk*, and the *Dwarf Free-bearer*, which are now seldom grown, are closely allied to the Chocolate Kidney Bean. They are, however, not so early, and on that account not so valuable.

Dwarf Yellow Hundredfold Kidney Bean.—A dwarf and very hardy variety, of compact growth, with medium-sized slightly puckered leaves, deep green tinged with gray. Flowers white, changing to yellow; pods rather short, numerous, each containing four or five straight, almost cylindrical seeds, which are sometimes square at the ends, and dark yellow verging on brown. This is a very productive kind, and is mostly cultivated in the east of France, where it is often grown in the vineyards.

Early Dwarf Chalandray Kidney Bean.—An exceedingly dwarf and early variety, forming a compact clump seldom over 10 in. high. Leaves small, long, and bright green; flowers rose or

pale lilac; pods slender, long, and slightly curved; seeds small, almost cylindrical, with very little of the kidney shape, about ½ in. long, and a light mahogany-brown in colour. This kind is almost as early as the Étampes Flageolet, and is especially well adapted for forcing. Both green pods and fresh seeds may be obtained from it.

Dwarf Yellow Extra Early Kidney Bean.—A dwarf plant, 10 or 12 in. high; stem light green; leaves not very numerous, gray-green, becoming soon yellow. Pods 5 in. long, flat, light green, produced in bunches of four or six at the end of the stems. Seed yellow, about ½ in. long and ¼ in. broad and thick, usually five per pod. This variety is the earliest of all the Beans with coloured seed, and is well suited for growing under frames. Its pods are of excellent quality as *Haricots verts*.

Dwarf Yellow Extra Early Kidney Bean.

Dwarf Barbès Bean.—This variety comes very near the Yellow Hundredfold Bean, but is taller and more vigorous. The seed is also larger, longer, and a clearer yellow, nearly that of the Yellow Canadian Bean. It is straight in shape, cylindrical, and often squared at both ends. The pods, like those of the Yellow Hundredfold Bean, are well filled, very fleshy, and may be eaten almost up to the time of their full development. In the south of France and Algeria it is much grown for producing green Haricots.

Royal Dwarf White Kidney Bean.—Under the name of "Swiss Kidney Beans" are grouped a certain number of varieties which are almost identical in habit of growth, and present hardly any difference except in the colour of the seed. In Italy these varieties are named *Fagiuoli cannellini*, and at Bordeaux they are known under the general name of *Haricot Capucine*. Almost all have the bad habit of sending out, above the leaves and flowers, a slender barren stem, of greater or less length, which never twines. This variety sometimes has this drawback, but possesses some very good qualities also, especially great productiveness and hardiness; very suitable for field culture. It has large and very rough, dark green coloured, and sometimes finely crimped leaves; flowers large and white; pods long and numerous, each containing five or six seeds, which are white, straight, almost cylindrical, often flattened

at one end (whence its French name of *Haricot Lingot*). They are usually about ¾ in. long, and something over ¼ in. in breadth and thickness. They can be eaten dried, but the skin is rather thick.

Early Dwarf White Bean.—A very pretty sub-variety of the preceding one, but free from the long sterile stems referred to above. It is also a few days earlier. The plant is of a dwarfer habit, more even in growth, and also more regular in earliness. The pods and the seeds do not show any marked difference.

Black Speckled Kidney Bean (*Haricot de Bagnolet*).—A kind much grown about Paris for its green pods. As a general rule, it does not exhibit the objectionable habit of growth alluded to in the description of the Royal Dwarf White Kidney Bean, and, in this respect, it is better than most of the Swiss Kidney Beans. It grows 14 to 16 in. high and has large deep green leaves, not much crimped, and lilac flowers; pods straight, long, very green, and, when young, almost cylindrical; seeds straight, long, rounded at both ends, nearly as thick as broad, black-violet variegated with nankeen yellow streaks on about one-third of their surface, these markings being sometimes reduced to a few light-coloured spots on a nearly black ground. There is also a white-seeded variety, which is identical in all other respects.

Black Speckled Kidney Bean.

Nettle-leaved Bagnolet Bean.—A sub-variety of the preceding kind, about 16 in. in height. Stem light green, very branching. It differs from the Black Speckled Bean by being a little earlier, and by the leaves, which are smaller, much crimped, veined, and of a lighter green; flowers white instead of lilac; the pods are longer, about 4½ in., and flat. The seed resembles exactly that of the Bagnolet Bean; each pod contains six.

Dwarf Parisian Bean.—A dwarf plant of vigorous early growth and rapid development, with dark green leaves and lilac flowers; pods straight, very long, marked with black streaks, which disappear in the cooking. The seed is flat, kidney-shaped, spotted dark purple on chamois. It is a good variety for the

kitchen-garden and also for field culture, where it yields abundantly about ten days earlier than the Black Speckled Bagnolet Bean and like sorts—a great advantage from the grower's point of view.

Dwarf Parisian Bean.

Glory of Lyons Bean.—Though resembling somewhat the Bagnolet Bean, it differs from that in some respects. The leaves are larger, and gray-green; the pods are broader and flatter; the seed is slightly smaller, thin, almost straight, and speckled yellow on brown. The chief difference, however, is in being eight to ten days earlier than the Bagnolet Bean, for which reason, though less productive, it is preferred by market gardeners.

Dwarf Marvel of Paris Bean.—A field variety, rather early, very vigorous, hardy, productive, above all remarkable for the length and slenderness of its pods, which are intensely green and almost cylindrical. The seed is thick, dark purple streaked with yellow; it is generally about 1½ in. long, and half that breadth, and less than ¼ in. thick. This variety is most probably derived from the old Bagnolet Bean. The seed has about the same appearance; it is, however, somewhat smaller and shorter, resembling in size that of the Solitary Bean.

Glory of Lyons Bean.

Sion House Dwarf Kidney Bean.—This is a variety for field culture and is hardy, early, and productive. Leaves numerous, of medium size, slightly puckered, and a rather deep green; flowers rose-coloured or lilac; pods long and straight. The shape of the seed resembles that of the Swiss Kidney Beans, but the colour, like that of the Cranberry Bean, is flesh colour finely dotted with light red or lilac. Although

true enough to its dwarf character, this kind forms less compact clumps than the Swiss Kidney Beans, and the stems are usually long and semi-trailing. It is not very particular about quality of soil, and requires very little attention, on which account it is one of the kinds which are most frequently sown in vineyards or amongst other crops.

Dwarf Emperor of Russia Bean.—A dwarf, half-early variety, rather compact in growth, very productive, with large slightly crimped leaves; pods numerous, slender and fleshy; seeds long and narrow, and light chocolate-brown with deeper-coloured stripes; less than ¾ in. long, about ¼ in. broad, and about ¼ in. thick. An excellent variety for the production of green pods for the table, especially in warm climates. The seed may be gathered when fully ripe without being liable to become stained, as is the case with most other varieties.

Dwarf Emperor of Russia Bean.

Dwarf Red Speckled Kidney Bean (*Haricot suisse rouge*).—A vigorous, branching variety, which does not usually produce the sterile stem before mentioned. Leaves stiff, not very large or numerous, smooth, and slightly gray-green; flowers lilac or rosy; seeds long, nearly straight, marbled with spots of a wine-lees red, which sometimes form longitudinal streaks on a pale red ground. This is a very productive kind, and the dried seeds are much esteemed. A variety cultivated in America, under the name of Improved Goddard or Boston Favourite, presents many points of similarity to this.

Besides the varieties of Swiss Kidney Beans which we have just described, the following also are in cultivation:—

Dwarf Blood Speckled Kidney Bean.—This variety bears a striking resemblance to the preceding one, both in habit and foliage. The flowers are a pale rose; seeds similar in shape to those of the Black Speckled Kidney Bean, but a deep red, dotted

with white or salmon colour. For some years past this variety has often been called "The Indian Kidney Bean."

Dwarf Light Dun-coloured Kidney Bean.—A vigorous variety, forming strong clumps, not producing the barren stem of the Swiss Kidney Beans, but sometimes bearing clusters of pods above the foliage. The leaves are large, slightly crimped, and gray-green; pods long, straight, nearly cylindrical, each containing five or six seeds of a light chamois colour, darkening with age, and brown around the *hilum*.

Other varieties of Swiss Kidney Bean are the Large Gray Swiss, the seed of which is yellow-white, streaked with black; the Bourvalais Swiss, with white seed marbled with light violet; the Red Ingot, the seed of which is paler than that of the Long Spotted French Bean and not marbled. Among the Swiss Kidney Beans may also be included the variety named the Giant Dwarf, which is remarkable for the width of its leaves and the length of its pods; but in cultivation it is now superseded by the improved variety of the Royal Dwarf White Kidney Bean.

Russian Dwarf Kidney Bean.—A very good dwarf variety, equal to any other for producing green pods. It is a very vigorous plant, with exceedingly broad leaves, finely crimped, dark and rather dull green in colour. Flowers lilac; pods very straight, and remarkably long and handsome. The seed, which in shape and colour has some resemblance to that of the Dwarf Light Dun-coloured Kidney Bean, is easily distinguished from all other kinds by the dull appearance of the skin. There is a sub-variety of this plant which has small black seeds, and produces pods that are perhaps longer and more cylindrical than those of the ordinary kind. There are often six, or even seven, seeds in a pod, and as each seed is nearly $\frac{3}{4}$ in. long, and lies in the pod at some distance from the seed which is next to it, the length of the pods is easily accounted for.

Spread-Eagle, or **Dove, Kidney Bean.**—Another dwarf tough-podded variety, which appears to belong to the section of the Swiss Kidney Beans, and grows to the height of 16 in. or more. Leaves light green, broad, long, and finely crimped; flowers white, and rather large; pods straight and long; seed very full, rather kidney-shaped, and quite white, except near the *hilum*, where it is marked with a black or brown blotch, the outline of which has some likeness to a bird with extended wings. Hence its most common names of "Spread-Eagle" and "Dove" Kidney Beans.

The **Shah Bean.**—A very vigorous plant, truly dwarf, because it does not send up any twining shoots. It grows into large erect bushes, not exceeding $15\frac{1}{2}$ to $19\frac{1}{2}$ in. in height; the leaves are very large and broad, dark green, smooth, not crimped; the lilac-coloured flowers are succeeded by fine green, long, straight

pods, much superior to those of the Black Flageolet Kidney Bean, or even of the Russian Kidney Bean. The pods are not only very long, but also very thin and perfectly round. The seed is black, narrow, straight, or slightly curved into kidney shape, somewhat flattened, about ½ in. long, about ¼ in. broad, and less in thickness; *hilum* white. Judged by its vegetation this variety belongs clearly to the series of the Swiss Kidney Beans, but it may be said to excel them all by the length and beauty of its pods. Of all the sorts grown it is the best for producing choice Haricot Beans. It is too tall to be grown under glass, and is much better suited for outdoor culture.

The Shah Dwarf Bean.

Dwarf Red Orleans Kidney Bean.—A variety which is usually true to its dwarf character, but occasionally runs at the top. Stems thick and short, forming a rather broad, compact clump; leaves stiff, medium-sized, crimped, a glistening green; flowers violet; pods rather numerous, short and slightly curved, each containing four or five rather small egg-shaped seeds, which are less than ½ in. long, of a deep, brown-red colour, with a black circle around the *hilum*. This variety is cultivated in the vineyards of Orléanais, just as the Yellow Hundredfold and the Turkish Kidney Bean are in the vineyards of Burgundy. It is sometimes erroneously confused with the Chartres Red Kidney Bean, which is a tall-growing kind, with seeds of a flatter shape and more squared at the ends.

Dwarf Soissons Kidney Bean.—A variety which is true to its dwarf character, and also early, but only a moderate bearer. Plant low-growing and thick-set. Leaves rather broad, smooth, and dark glistening green. It does not produce the sterile stem of the Swiss Kidney Beans, but clusters of pods are sometimes borne above the foliage. Pods usually curved and of irregular width, owing to the unequal size of the seeds, which are much

smaller than those of the Large White Runner, and are more like those of the Liancourt Kidney Bean, being white, rather flat, and moderately kidney-shaped.

Dwarf Green Soissons Bean.

Dwarf Green-seeded Soissons Bean. — Resembles the preceding but is a little earlier, and its leaves are a darker green. Pods curved, about ½ in. long, a little less in breadth, usually produced in pairs, and containing six large green seeds, a little over ½ in. in length, rather more than ¼ in. broad, and ¼ in. thick. The method practised for drying the seed so that it may keep its green colour is the same as for the other green-seeded kinds.

Early Dwarf Scimitar Kidney Bean.—This very distinct and valuable variety differs completely from the old Dwarf Case-knife, which is now no longer cultivated. It is a low-growing and very thick-set plant, with broad leaves, slightly crimped, and dark lustrous green. Flowers white ; pods long, broad, straight, and well filled. The plant comes into flower almost about the same time as the White Flageolet, and its earliness, and also the fineness of its seeds, render it a valuable kind for forcing under a frame. The seeds are broad and well filled, nearly ¾ in. long, over ⅓ in. broad, and ¼ in. thick, pure white, and, like the skin, sometimes slightly wrinkled.

Early Dwarf Scimitar Kidney Bean (⅛ natural size).

Common White Flat Bean.—An ancient variety, still used in certain countries for field culture. May be classed also with the Runner Beans, because the branches, though they do not climb well, run to a considerable length, and trail on the ground. The foliage is abundant, rather

folded, leaves inclined to be small, and a dark green; flowers white; pods short, with four or five medium-sized seeds, similar in shape almost to those of the Liancourt Bean, glossy and a pure white.

Common Round White Bean.—Like the last-named, very irregular in habit, and almost entitled to be called a Runner Bean. A slender light-green stem, about 3 ft. 3 in. high; leaves a decided green and smooth; flowers white; pods light green, not long, and containing generally six white rounded seeds. In spite of its faulty habit, this variety is commonly used in field culture for the sake of its seed. A variety cultivated in Canada, under the name of Pea Bean, and in the United States, under the name of Navy White or Boston Small Bean, differs very little from the Common Round White Bean.

Dwarf White Rice Kidney Bean.—A dwarf but remarkably branching kind, forming clumps over 2½ ft. wide. Leaves very numerous, rather pointed, medium-sized or small, and light green; pods short, very numerous, containing five or six seeds; seeds white, egg-shaped, nearly ¾ in. long, ¼ in. broad, and about the same thickness, with an exceedingly thin skin; of remarkably good quality, and consequently much used in the dried state. Although its seeds are small, it is very productive, but is rather late, in consequence of which the seeds are sometimes spotted and blemished if the autumn is cold and damp. There is a very small-seeded variety of this plant, which produces vast numbers of pods, and is known as the Dwarf Hungarian Bean, or the Hungarian Rice Kidney Bean. (*Syn. Haricot Comtesse de Chambord.*)

Dwarf White Bagnolet.—A handsome, vigorous, hardy kind, which in habit of growth is rather like the Black Speckled Kidney Bean, but differs from it entirely in the seed, which is white, rather flat, and kidney-shaped, and is good for use either dried or in the green state.

Impératrice Dwarf Bean.—In appearance and foliage this kind resembles the Swiss Kidney Beans, but it has broader and slightly curved pods. Seed large, full, kidney-shaped, and remarkable for a large deep red blotch encircling the *hilum*, and extending over about one-third of the surface of the seed, the remainder being pure white thickly dotted with small red specks, which appear in bold relief on the white ground.

Mexican Dwarf Kidney Bean.—One of the earliest of all the Tough-podded Kidney Beans, of low and scantily branching growth, with medium-sized leaves, deep green tinged with gray. Flowers very pale lilac; pods short and rather broad, each containing four or five egg-shaped, slightly flattened seeds, salmon-rose, with a brown circle round the *hilum*.

Neapolitan Kidney Bean.—Under this name are grouped several varieties with white, egg-shaped seeds, like those which are

imported in large quantities from the south of Italy and from Sicily; but it is more a commercial name than that of any special variety.

Round Yellow, or **Six-Weeks, Dwarf Kidney Bean.**—A low-growing, thick-set kind, with slightly grayish and elongated leaves. Flowers pale lilac or rose; pods rather broad and short, each containing four or five egg-shaped seeds, about ½ in. long, and of a uniform deep yellow colour, except about the *hilum*, where they are of a darker shade, closely approaching brown. A remarkably early and very productive variety.

Solitary Prolific Kidney Bean, or **Bush Haricot.**—A very branching plant, which forms a strong clump, does not produce a barren stem like the Swiss Kidney Beans, and attains a height of 16 to 20 in. Leaves rather small, very numerous, long, pointed, and deep green; flowers pale lilac. The seed somewhat resembles that of the Black Speckled Kidney Bean, but is seldom more than ½ in. long, and is of a pronounced violet colour. The chief merit of this variety is that it forms a strong clump and branches very much, in consequence of which some cultivators sow each seed separately, instead of putting several into the same hole or pocket.

Dwarf Green Vaudreuil Bean.—Resembles the Chevrier Bean by its seeds being of a bright green colour, which colour they keep when dry, if the plants are pulled before complete maturity. It is hardier than the Flageolet Beans, and differs from them in the pods being rounded and straight, and also in the seed being short, thick, and almost square.

Plein de la Flèche.—A good variety, of vigorous, thick-set growth, and resembling both the Black Speckled (*H. Bagnolet*) and the Solitary Bush Kidney Bean; the former in its habit of growth, and the latter in its seed.

The following varieties are of English or American origin:—

Early Light Dun and **Early Dark Dun.**—These two kinds bear some resemblance to the Yellow Flageolet, but their seed is uniform in colour, without any circle around the *hilum*. The seeds of the two kinds are distinguished by those of the first being a lighter brown than those of the second.

Early Rachel.—A dwarf and productive kind, with dark-brown, elongated seeds, slightly spotted with pale brown or yellow. It has some resemblance to the Chocolate Kidney Bean.

MacMillan's American Prolific.—Somewhat resembles the Sion House Kidney Bean in its general appearance and in the colour of the seed, but is more compact in growth, forming denser clumps.

The Monster.—A dwarf and exceedingly vigorous-growing variety, with enormous leaves, resembling in their amplitude those of the most highly developed Swiss Kidney Beans. Pods of medium size, straight; seeds black, longer, and more curved than those of the Belgian Negro Bean. A tolerably productive, half-early kind.

New Mammoth Negro.—The pods and seeds of this kind are rather like those of the Negro Long-pod, but in its mode of growth and the colour of its leaves it bears a greater resemblance to the Belgian Negro. It is not so good a kind for green Haricots as the Negro Long-pod.

Newington Wonder.—This dwarf variety can hardly be recommended for any other purpose than frame culture for the production of seeds, as its pods are too short for green Haricots. The seed is of a light yellow colour and remarkably small.

Early Mohawk Bean.—Very hardy ; pods long, flat, straight. One of the Beans most commonly cultivated in the United States, and as often grown under glass as in the open air. The seed is pale green, marbled with dark violet or brown.

Best of All Bean.—A vigorous, ramified, fairly productive half-early kind ; the pods long, fleshy, intense green, becoming lighter at maturity, and marked with bright red shades ; seed pale yellow stippled with red.

Currie's Rust-proof Wax Bean.—Resembles the Dwarf Flageolet Wax Bean, except that it has black seeds.

Davis Kidney Wax.—A species of Dwarf Flageolet Wax Bean, hardy and productive, with long yellow straight pods, not free from parchment, and requiring to be pulled when young. Seed long white kidney-shaped.

Emperor William.—Resembles in foliage and growth the Dwarf Scimitar White Bean, with rather flatter pods. The seed is white, flat, and rather kidney-shaped.

Ne Plus Ultra Bean.—Dwarf ; leaves light green, flowers white tinged with pink. Seeds resemble those of the Yellow Hundred to One, but the pods are longer.

New Bountiful Kidney Bean.—Seed like that of the Long Yellow Flageolet, but the growth of the plant is freer, and the foliage lighter, and the pods more whitened.

Stringless Green-pod Bean.—Half-early, vigorous, and productive, much esteemed in the United States. Pods long, fleshy, slightly curving, pale green. Seed a deep madder-colour.

Sutton's Prolific Negro Dwarf Bean.—A good variety of the Negro Black or Dwarf Belgian, but with longer pods.

Osborn's Early Forcing.—A good dwarf kind, of dense branching growth, producing large numbers of medium-sized pods, each containing four or five short bulging seeds, deep-brown, with some spots of light yellow.

Refugee, or **Thousand to One.**—A rather compact-growing variety, with remarkably long, straight, smooth, dark-coloured leaves, and violet flowers. Pods straight and rounded ; seed hardly kidney-shaped, almost cylindrical, light yellow, variegated with wine-lees-red markings.

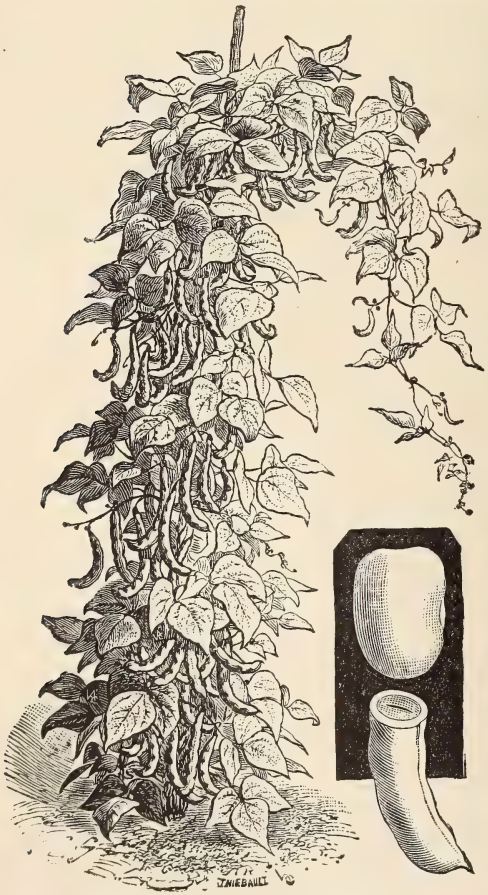
Extra Early Refugee is bushier and earlier than the type, and the foliage is paler green.

Sir Joseph Paxton.—A small-sized, very early, dwarf kind, with rather short pods. The seed is almost exactly like that of the Yellow Hundredfold, but is of a deeper, and nearly brown, colour.

Williams's New Early.—A very early and rather productive kind, the seeds and pods of which are marbled with violet. This colouring of the pods, added to their flat shape, lessens their value for table use.

Yellow Canterbury.—A dwarf variety, with small yellow bulging, straight seeds, very much resembling the Yellow Hundredfold.

EDIBLE-PODDED KIDNEY BEANS



White Tall King of the Skinless Beans.

French, Haricots sans parchemin. *German*, Zucker-, *oder* Brech-, Bohnen. *Danish*, Snittebonnen. *Italian*, Fagiuoli mangia tutto.

I. Tall-Growing Varieties

Tall White Algerian Wax or **Butter Bean.**—A rather vigorous kind, about 6½ ft. high, very remarkable for the light or yellow tint of its leaves, which renders it conspicuous at a distance. Stems wax-yellow or white, as are also the leaf-stalks; flowers white; pods long and slender, more or less curved, each containing, with some distance between them, five or six white egg-shaped, somewhat elongated seeds over ½ in. long. An Edible-podded variety, it has, besides, this advantage—that its dried seeds can be sent to table.

White Tall King of the Skinless Beans (*Haricot Roi des Mangetout*).—A very vigorous-

growing and productive variety, with strong and long stems and abundant foliage; pods numerous, yellow, sickle-shaped, extremely fleshy, entirely free from parchment, and containing from five to seven seeds each. The latter are large and white, squared at one end, ½ in. long and ⅓ in. broad.

Cambrai Tall Wax or **Butter Bean.**—Not exceeding 5 ft. in height; stem slender, pale green; leaves small, light green, striped gray-green; flowers white, turning to nankeen-yellow. Pods about 5 in. long, ½ in. broad, straight, of a pleasing butter-yellow colour, containing five or six fairly large white egg-shaped seeds, about ½ in. long, slighter in breadth, and about ¼ in. thick. A very productive variety, producing pods of excellent quality. Its very vigorous growth enables it to resist the disease to which the tall Beans are liable.

Mont d'Or Wax or Butter Bean.

Mont d'Or Wax or **Butter Bean.**—This handsome and good variety was raised near Lyons, whence it has been widely distributed throughout France. It is a very distinct kind, scarcely as tall as the Algerian Wax Bean, with pale green stems tinged with red, and smooth, uncrimped light green leaves and blue flowers. Pods very numerous, straight, pale yellow, like those of all the Butter Beans, nearly 6 in. long, very free from membrane, each containing five or six egg-shaped violet seeds, spotted and marbled with brown, and perceptibly smaller than those of the Black and White Algerian Wax Beans. This variety, which is only grown for the pods, is remarkable for its earliness and productiveness.

Algerian Tall Black Wax or **Butter Bean.**—A very distinct and well-known kind, probably the oldest of the varieties which are called Wax or Butter Beans from the colour of their pods. It is a plant of medium height, seldom exceeding about 6½ ft., with rather thick pale or yellow-green stems sometimes tinged with violet; leaves of average size, not much crimped, gradually decreasing in size from the base to the top of the stem, and slightly ashy gray. The pods, which are green at first, assume, when they are about 2 in. long, a pale yellow semi-transparent tinge, very much resembling that of butter or fine wax; they are usually somewhat curved, each containing from four to six seeds, which are blue at first, then violet, and when ripe quite black, and of a slightly flattened egg-shape, and a trifle longer than those of the Prague Kidney Beans. This is a productive and moderately early kind, and one of the best of the Edible-podded varieties. The pods are entirely free from membrane, and have hardly any fibre, so that they are quite tender and fleshy when fully grown, and may be sent to table almost until they are perfectly ripe. The dried seeds are seldom eaten on account of their very dark and unattractive colour.

Black Algerian Butter Bean (1/2 natural size).

Edible-podded Giant White Kidney Bean.—This very fine variety appears to be the offspring of the Purple-podded Kidney Bean, of which it exhibits all the vigorous and productive qualities; it has, moreover, the advantage of producing green pods and white seeds, thus being free from the only two blemishes that can be attributed to the Purple-podded Kidney Bean, viz. the objectionable colour of its pods and seeds. It is a half-late but productive kind,

with stout stems 6 to nearly 10 ft. high. Leaves very large, but not numerous; leaflets rounded and crimped. The flowers are white; pods very broad, and very numerous, 4 to 6 in. long, entirely free from membrane, thick and fleshy, each containing four to six flat white seeds, resembling those of the White Dutch or Case-knife Kidney Bean. When grown under favourable circumstances, this variety produces such an abundance of pods as to weigh down the stakes which support it.

Edible-podded Giant White Bean.

Broad-pod Skinless Kidney Bean.—This variety, which was raised by M. Perrier de la Bathie, is one of the most singular and distinct varieties that has appeared for some years past. It is a vigorous, rather late productive kind, and remarkable amongst the Edible-podded varieties. Stem 4 to 6 ft. high, bearing pods abundantly near the base; leaves large, very green, slightly crimped; pods so thick and fleshy that the diameter from side to side is one-third greater than the distance between the front seam and the back. There is, however, no empty space inside the pod, which is so thick and fleshy that the seeds have hardly room to grow, and appear deformed by the pressure to which they are subjected. They are white, elongated egg-shaped, sometimes faintly kidney-shaped, about ½ in. long, and ¼ in. broad and thick;

they are almost unique in being irregular in shape, being almost always flattened cross-wise, and the *hilum*, instead of occupying its usual position, is situated on one side of the line which would divide the seed into two equal parts. The seeds vary very much in size, however, according to the season.

The *Fat Horse Pole Bean* or *Mobile Bean* resembles the preceding variety, but is a little earlier.

Broad-pod Skinless Bean.

Four to Four Bean.

Geneva, or **Plainpalais, White Butter Bean**, or **Wax Bean.**—This variety is highly esteemed by the Geneva market gardeners. It is a tall-growing kind, coming very near the preceding one, but differing from it in a few points. It is more decidedly a pole bean, being a better climber than the other. The pods, which very much resemble those of the Broad-pod Kidney Bean, are not so fleshy, but they are produced in greater abundance, especially at the middle and towards the top of the stems; they also ripen more

readily. The seeds, or beans, are white, and of an elongated and nearly cylindrical shape. It is, in fine, a good mid-season tall variety of Butter Bean.

Four to Four Bean.—Stems green, about 6½ ft. in height, and bearing pods at a short distance above the ground. The pods, which are long, straight, thick and intensely green, are often produced in bunches of four, or even more—hence its name. The seed is short, square at the ends, fairly full and white. Though not free from fibre, the pods may be eaten green until they are three-fourths of their full size. The white colour of the seed allows of its being used in a dried state. The Four to Four Bean is productive and fairly early.

Skinless Saint-Fiacre Bean.

Skinless Saint-Fiacre Bean.—One of the most productive varieties of Skinless Pole Beans. Stems green, tall, with large, smooth leaves; pods very numerous, quite straight, about 10 inches in length, entirely without membrane or fibre, and tender and fleshy even when fully grown. The seed is oblong and thin, dun-coloured, about ¾ in. long, about ½ in. broad, and about half as thick. A fairly early variety, bearing during the whole summer.

Skinless White-seeded Saint-Fiacre Bean.—An offspring of the preceding, with all its good qualities added to white seeds, enabling the surplus of the crop to be made good use of when dry.

The pods equally fine and excellent. The seed is the same shape and size, but of white colour.

From the Valley Skinless Bean.—Stem stout and branching, 10 ft. or more in height; leaves light green, pointed and smooth; flowers white. Pods rosy white, 7 to 9 in. long, twisted, with a well-marked groove and bulging seeds eight or ten in a pod. The seeds, like those of the Saint-Fiacre Bean, are light brown, but more flat; they are about ¾ in. long and about half as broad. A very early and productive variety, the pods very fleshy, and tender almost up to their complete maturity.

From the Valley Skinless Bean.

Golden-yellow Tall Skinless Bean.—A vigorous variety, about 6½ ft. in height, quick-growing, but slackening early. It is one of the earliest Tall Skinless Beans. It sheds its leaves as early as the Princess and the Prédome Beans. The pods are in bunches of four, five, or six, long and slightly curved, green and fleshy. The seed is rather small, straight, squared at both ends, light yellow streaked with deep golden-yellow; it seldom exceeds ½ in. in length by half as broad, and is of about the same thickness.

Purple-podded Runner Kidney Bean.—A very vigorous and tall kind, sometimes attaining a height of 9½ ft. and upwards. The stems, which are stout and rather thick, are purple, as are also the

leaf-stalks and the calyxes of the flowers; the leaves are rather distant from each other, very much crimped, and dull green; flowers lilac; pods very numerous, straight, slender, at first of a very deep purple, but, as they advance in growth, becoming paler, and more or less bulged and undulated, but always very solid and fleshy. They are sometimes 10 in. long, and relatively slender, and contain six to eight seeds each. The seeds are long and flat, something larger than those of the Flageolet Kidney Beans, and almost the same shape; and are rosy colour marbled with lilac-gray. A rather early and exceedingly productive kind, and one of the best edible-podded sorts, being quite free from membrane, and, when cooked, as green as those of any other kind.

New Zealand, or Prague, French Bean.

Edible-podded Black Scimitar Runner Bean.—A distinct kind, with flat kidney-shaped seeds, and pods entirely free from membrane. It is a tall-growing plant, being over 8 ft. high, with thick pale green stems. Leaves large and broad, rather distant from each other, pale green, and crimped; flowers lilac; pods long and broad, not curved, but frequently bulged or undulating on the edges, 6 to 8 in. long, violet at first, but losing this colour as they increase in growth, each containing six to eight seeds of the same size as those of the White Dutch Kidney Bean, but somewhat more humpy and irregular in shape, and with a very shining, brilliant black skin. This variety is remarkable for the great size and beauty of its pods. It is very productive, but rather impatient of damp, and half-late in ripening.

New Zealand Runner Kidney Bean (*Haricot de Prague Marbré*).—A variety of moderate height, seldom exceeding about 4 ft., with thick green stems. Lower leaves large, slightly crimped, the rest of medium size, narrow, and rather dark green; flowers pale lilac or rosy white; pods broad, about 5 in. long, green at first, afterwards becoming tinged with violet-red on a white ground, and sometimes entirely red when ripe, each containing five or six egg-shaped seeds, of a salmon-rose colour, spotted, dotted, and striped with deep red, and having a brownish yellow circle around the *hilum*. This kind, which was introduced about the middle of the eighteenth century, is well known and extensively cultivated under the name of "Coco Rose." It is more generally grown for the dried seeds than for the pods.

White Prague Kidney Bean.—Although this variety resembles the White Coco Bean in the colour and shape of the seed, it is distinguished from it by several marked characteristics. It is later and longer-lasting; the leaves are more abundant and do not fall so soon; they are large, not much crimped, and rather a dark green, and those at the top of the stem are nearly the same size as the lower ones; the flowers are white, and the pods, which are abundantly produced up to the tops of the stems, are longer and narrower than those of the White Coco; the seed also is larger, something flatter, and not so regularly egg-shaped. A very productive variety, with the single drawback of being somewhat late, and therefore less valuable in localities where the autumn is cold and damp.

White Coco, or **Lazy Wife, Kidney Bean.**—Stem green, about 6½ ft. high; leaves of medium size, stiff, rather long and pointed, of a dark, rather dull, green, and slightly crimped; flowers white; pods of medium length, rather broad, green, each containing five or six white egg-shaped seeds, about ½ in. long, nearly ½ in. broad, and over ¼ in. thick. This variety, although ranking amongst the Edible-podded kinds (especially when the pods are young), is more esteemed for its seeds, which are used in the dried state.

The **Sophie Kidney Bean** is considered to be only a sub-variety of the White Coco, from which it differs in having rather larger pods (which are sometimes tinged with red, like those of the Prague Kidney Beans) and somewhat larger leaves.

Red Prague Kidney Bean.—This variety differs from the preceding in the seeds being a uniform dark brown-red.

There is also a sub-variety, known as the *Two-coloured Prague Kidney Bean*, the seeds of which are half red and white.

Among the Prague Kidney Beans should be included the variety named Imperial Austrian White Coco, or Bossin. This is a large, productive, and rather late kind, the seed of which is white

and nearly round, with a black bird-shaped blotch around the *hilum*, something like the seed of the Spread Eagle, or Dove, Kidney Bean.

The **Two-coloured Italian Kidney Bean** should also be classed with the Prague Kidney Beans. It is a very productive, tall kind, producing seeds of excellent quality for the table. There is a sub-variety of it, the pods of which, immediately before ripening, assume an exceeding lively uniform red colour, giving the plant quite an ornamental appearance. The seeds of both kinds are round, slightly egg-shaped, half white and half very pale chamois-colour.

The Mammoth Podded Horticultural Pole Bean, or Worcester Mammoth, Hampden, Mugwump, Carmine Podded Pole Bean, cultivated in America, is only a sub-variety of the New Zealand Runner Bean, with longer and stouter pods and larger seeds.

Two-coloured Coco Prolific Bean.—Seed a long oval in shape, ½ to ¾ in. in length, about ¼ in. broad and of the same thickness. The part opposite the *hilum* is entirely white: the *hilum* itself is marked with a narrow dark yellow ring, girdled by streaks like those of the Marbled New Zealand Runner and extending over one-third of the whole surface.

Tall White Prédome Kidney Bean.—Stem about 4 ft. high, green, thick, and twisted; leaves of medium size, rounded at the base, crimped, and a rather deep green colour; flowers white, changing to yellow; pods very numerous, straight, fleshy, deeply indented on the sides by the bulging of the seeds, 3 or 4 in. long, each containing six or seven very white nearly round seeds, which are often flattened at the ends, and are about ½ in. long, ¼ in. broad, and less than ¼ in. thick. The pods are very tender and brittle, and free from membrane, in this respect surpassing all other varieties of Tall-growing Kidney Beans. The seeds, also, are of very good quality,

White Prédome Kidney Bean (⅓ natural size).

so that the plant supplies an excellent vegetable, not only while the plants are green and the seeds half-formed, but also when the seeds are fully grown and ripening. The pods, also, are free from fibre, and can be cooked just as they are gathered, without any trimming. This is one of the best kinds of Edible-podded Kidney Beans, and is very extensively grown in France, particularly in Normandy, where there are two or three forms of it which differ slightly from each other in the size of the pods and seeds. It is a half-late variety.

The *Haricot Friolet* and the *H. Petit Carré de Caen* are local forms of the Prédome Kidney Bean rather than distinct well-marked sub-varieties. The *Friolet* is usually considered to produce smaller seed, but this does not appear to be a universally constant characteristic.

Princess Runner Kidney Bean.—Stem green, thick, twisted, 6½ ft. high or more ; leaves round, of medium size, crimped, and deep green ; flowers white ; pods very numerous (especially at the base of the stems, where they form regular bundles), straight, green, bulging greatly over the seeds, and turning yellow when quite ripe ; they are from 4 to 6 in. long, and seldom contain more than eight seeds each. The seeds are white, slightly egg-shaped, and very like those of the preceding variety, except that they are never flattened at the ends. A very good, hardy, exceedingly productive, and fairly early variety. It is extensively grown in French Flanders, Belgium, and Holland. While it much resembles the Prédome Kidney Bean, it is sufficiently distinguished from it by the greater distance between the seeds in the pod, and also by growing fully one-third higher. When grown true to name, the seeds of the Princess Kidney Bean (which never touch each other

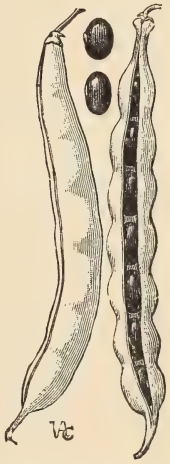
Princess Edible-podded Runner French Bean.

in the pod) preserve their natural slightly elongated egg-shaped form, while those of the Prédome are pressed against each other, and, consequently, become flattened at the ends.

There is a sub-variety with longer pods and greater distances between the seeds, known as the Long-pod Princess, which is quite as early and productive as the ordinary variety.

From amongst the almost innumerable other varieties of Tall-growing Edible-podded

Cherry Japanese French Bean.



Ivory Butter Bean.

Beans, we may also mention the following as possessing the greatest degree of merit :—

Cherry Japanese Bean. — A very distinct variety, with numerous, very short pods, slightly over 2 inches long, containing 4 or 6 oval seeds of wine-lees-red colour and white *hilum*.

Tall Ivory Wax or **Butter Bean.**—A tall-growing kind, 6½ to over 8 ft. high. Stems whitish, slightly tinged with red on the side next the sun; leaves numerous, of medium size, and of a light green; flowers lilac; pods numerous, fleshy, straight or slightly curved, entirely free from membrane, and especially remarkable for the white tint which they assume when they are two or three days old, and which becomes more pronounced as they advance to maturity. Each of them contains from five to eight egg-shaped

seeds of red-violet colour, and of the same size as the seeds of the Red Prague Kidney Bean, from which they differ in colour only. This is a good Edible-podded variety, somewhat late, but an abundant and remarkably continuous bearer.

Saint-Joseph Butter Bean.—This variety forms the connecting link between the Prague Kidney Beans and the Butter Beans properly so called. Its pods are straight or slightly curved, and are streaked with red on a butter-coloured ground. The seeds are marbled either with violet on a rose-coloured ground or with rose-colour on a violet ground. The plant is not a tall-growing one, as it seldom exceeds 4 ft. in height. It was raised about the year 1860 at the agricultural colony of Citeaux, near Dijon.

Bulgarian Bean.—Rather late, vigorous, and prolonged in vegetation; stems tall and twining; leaves dark green, large and abundant; flowers lilac; pods long, straight, very fleshy and brittle, dark green in colour striped with violet, and free from parchment. The seed is long, flat, gray streaked with purple, about ¾ in. long, ½ in. broad, and about half as thick. In the climate of Paris it is one of the best and most prolific Beans for producing green pods, but for maturing its seed it requires the warmth of Southern France.

Imperial Kidney Bean.—This is distinguished from the Tall White Butter Bean only by the colour of its stems and pods, both of which are green instead of butter-yellow.

Climbing Yellow, or **Dunes Yellow, Kidney Bean.**—Of medium height, productive, and fairly early. Seeds yellow, nearly cylindrical, resembling those of the Yellow Hundredfold. Pods straight, very fleshy and tender, and from 4 to 6 in. in length.

Lafayette Kidney Bean.—A tall variety, rather late, and with pods not altogether free from membrane. Flowers white; pods pale green, becoming yellow when ripe, each containing six to eight chamois-coloured seeds marbled with light brown and shaded with reddish brown around the *hilum*.

Nankeen-yellow Geneva Bean.—A tall early plant, bearing an abundance of pods in bunches of four, five, and even eight on the same stalk. Seed kidney-shaped, flat, pale nankeen-yellow.

Asparagus, or **Yard Long, Kidney Bean.**—A very tall kind, nearly 10 ft. high. Leaves very large and distantly placed; flowers copper-coloured or lilac; pods almost cylindrical, exceedingly long and slender, sometimes more than a foot in length; seed very long, nearly cylindrical, but narrowed at both ends, of a more or less coppery chamois-colour. A late kind, requiring a warm climate.

Rose-coloured Prédome Butter Bean.—A plant of medium height, seldom exceeding 4 ft., but branching and clumpy. Flowers rose-coloured; pods exceedingly numerous, growing in profusion from the base to the top of the stem, but seldom

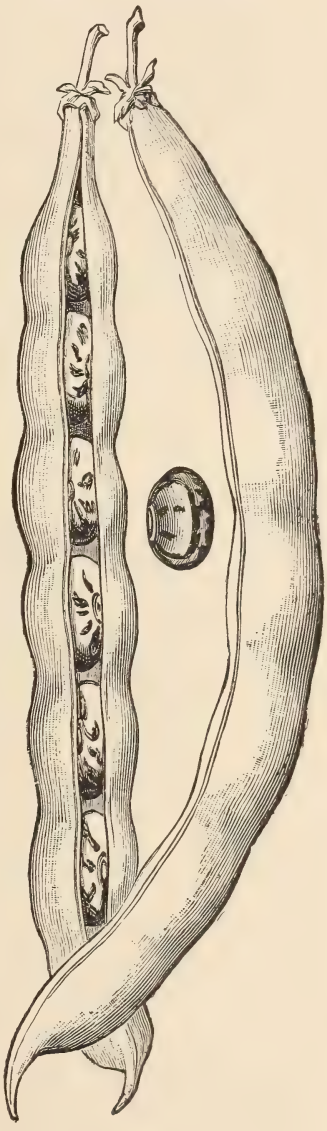
exceeding 2 or 3 in. in length, and each containing four to six small nearly round seeds of a salmon-rose colour.

Val d'Isère Kidney Bean.—This is a very vigorous, leafy, late kind, laden, in the end of autumn, with green, fleshy, well-filled very much curved pods. Seed black, egg-shaped.

Villetaneuse Kidney Bean.—This variety, which was formerly very much grown about Paris, is now almost entirely superseded by the Tall-growing Butter Beans. It is a productive, somewhat late kind, bearing rather long, tender, and thick pods, each containing five or six flattened, almost square, coffee-coloured seeds marbled and streaked with brown.

Gray Zebra Runner Kidney Bean.—A late and very vigorous kind, nearly 10 ft. high, with large, spreading leaves and lilac flowers. Pods thick, fleshy, curved, streaked with violet on a green ground; seeds egg-shaped, of a dark gray colour, dotted with lighter gray, and striped with black. Raised by M. Perrier de la Bathie.

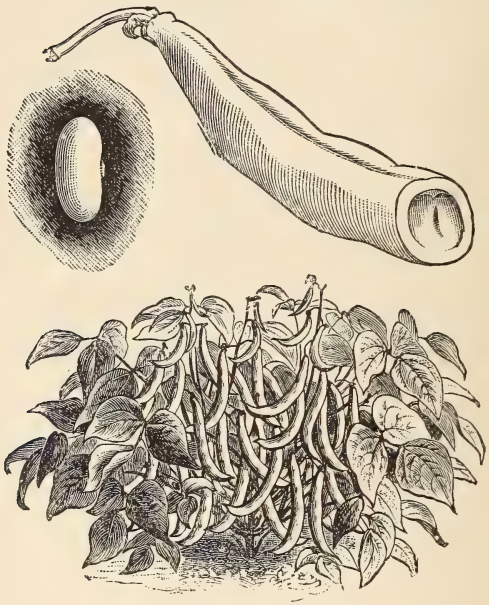
La Val d'Isère French Bean.



Gray Zebra French Bean.

The American variety, *Giant Red Wax Pole Bean*, is a Tall-growing Edible-podded Kidney Bean, 6½ ft. high, with large flat white or yellow pods, resembling those of the Edible-podded Black Scimitar Kidney Bean, and red seeds. It is a rather late kind.

II. Dwarf Edible-podded Kidney Beans



King of the Wax Bean.

Dwarf White Wax or Butter Bean. — A very good but somewhat tender variety, forming low, broad clumps, which sometimes sprawl on the ground. The leaves become smaller and paler towards the tops of the stems. Flowers white; pods almost transparent, waxy white, and about 4 in. long, each containing five or six short, egg-shaped, creamy white seeds, sometimes slightly wrinkled. The dried seeds are excellent for the table.

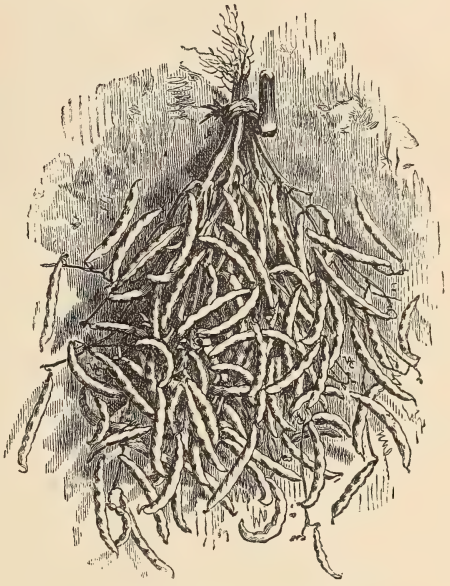
King of the Wax Bean.—A dwarf, compact plant, with short but stout rigid stems. Pods numerous, very thick (compared with their length), tender and fleshy. Seed white, full, oblong, thin-skinned. Among the numerous varieties of Wax Beans, this takes an important place, its production being more abundant and longer than that of any other. The dry seed is very tender and of excellent quality.

Very Early Dwarf Butter Bean.

Very Early Dwarf Wax or Butter Bean.—Regular and dwarf in habit and very early; stem short; leaves broad and pointed, veined, gray-green. Pods long and numerous, yellow, free from membrane; seed small, short, buff-coloured, about ½ in. long and about half

as broad and a little less in thickness. A very interesting variety owing to its small size and great earliness. Admirably adapted for forcing, but also well suited for open ground culture.

Dwarf Golden Wax Bean.—Very dwarf, compact, early and productive; pods tender and fleshy even when fully grown. The seeds five or six in a pod, small, oval, bright yellow, and about ½ in. long, about ¼ in. broad, and a little less in thickness. Its earliness and the little space it occupies suit it well for glass as well as for open ground culture.



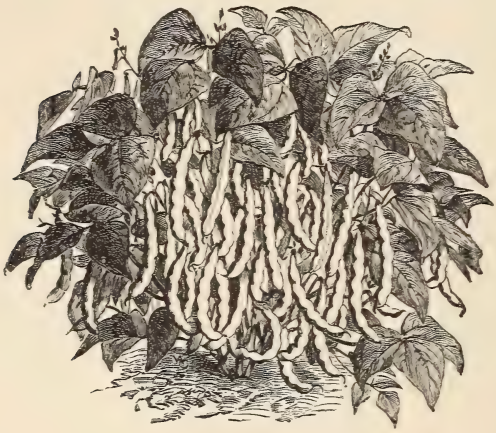
Dwarf Golden Wax Bean.

Digoin Wax Dwarf Bean. — A vigorous, half-early and very productive variety for field as well as kitchen-garden culture. Dwarf, bushy, compact, branching, with large dark green leaves; numerous fleshy, thick pods of a beautiful golden yellow, and free from parchment. The seeds are oval and of chamois-colour.

Mont d'Or Dwarf Butter Bean.

Mont d'Or Dwarf Wax or **Butter Bean.**—A very productive and very early variety of Dwarf Butter Bean. Stems 1 ft. to 16 in. high, branching; leaves large, rough, but not crimped, deep green, remarkable for the very variable shape of the terminal leaflet, which is sometimes long and pointed, and sometimes nearly round and quite blunt at end; pods very numerous, 4 or 5 in. long, well filled, and pale yellow; seeds small and round, dark red, deepening into black.

Dwarf Algerian Black-seeded Butter Bean.—An established dwarf variety of the Agerian Wax or Butter Bean, with rather large yellow-stalked leaves, the colour of which varies, on the same plant, from dark to light green. Flowers lilac; pods very fleshy and butter-colour; seeds black, egg-shaped, a little smaller than those of the Tall-growing variety. This is an early kind, very productive, and of excellent quality, and is one of the most extensively grown varieties of Kidney Beans. It has the precious peculiarity that the pods on maturity become curved or bent, thus escaping contact with the soil.



Digoin Dwarf Wax Bean.

The Black Wax or **Butter Bean** is an early dwarf, with pale gray-green foliage and black seed. It may be considered as identical with the Dwarf Algerian Black-seeded Bean.

The Prolific German Wax or **Butter Bean**, cultivated in the United States, differs only from the Dwarf Algerian in having the pods slightly longer, more curving and more swollen.

Dwarf Algerian Black-seeded Butter Bean ($\frac{1}{8}$ natural size).

Long-podded Dwarf Algerian Butter Bean.—This is to be a sub-variety of the Dwarf Algerian Butter Bean, differing in its longer pods, and also the shape of its seeds, which, instead of being egg-shaped, are almost cylindrical, nearly $\frac{3}{4}$ in. long and over $\frac{1}{4}$ in. broad and thick. The pods are very free from membrane, and are more slender and less

fleshy than those of the preceding kind. This variety has come into very general cultivation about Paris, where it is grown in the fields for the city markets.

Long-podded Dwarf Algerian Butter Bean ($\frac{1}{8}$ natural size).

Early Dwarf White Edible-podded Kidney Bean. — Stem tall and branching, attaining a height of 20 in., leaves medium sized, numerous, rather crimped; flowers white; pods 6 in. long, flat, very thick and fleshy, almost always curved or twisted, each containing five or six white flattened, moderately kidney-shaped seeds, sometimes slightly squared at the ends, varying from $\frac{1}{2}$ to nearly $\frac{3}{4}$ in. in length, about $\frac{1}{4}$ in. broad, and about $\frac{1}{6}$ in. thick. This variety is fairly good for field culture, a good bearer and pretty early, but the seeds are easily spoiled by cold or damp autumn weather.

Unique Dwarf White Kidney Bean.—Stem tall, vigorous, and branching; leaves rather deep green, large, rounded, and crimped; flowers large, white; pods numerous, straight, 5 or 6 in. long, each containing five or six white, long, very bulging, straight or curved seeds, almost as thick as they are broad. This is one of the best Dwarf Edible-podded Kidney Beans. Its dried seeds also are of excellent quality, and perfectly white—a great recommendation, as Kidney Beans of this colour are generally preferred for table use.

Unique Dwarf White Kidney Bean ($\frac{1}{8}$ natural size).

Quarantain Dwarf White Kidney Bean.—A plant of medium height, with branching stems, forming a rather compact clump. Leaves of average size, stiff

almost triangular, long, pointed, and dark lustrous green; flowers white; pods flat and broad, and from 4 to 6 in. long. A hardy, early, and fairly productive variety, but not always maintaining a strictly dwarf habit of growth.

Dwarf Extra Early Wax or **Butter Bean.**—A very dwarf plant, extremely early, forming and maturing its pods before any other variety of Edible-podded Beans. In growth it resembles the Dwarf Algerian Black-seeded Butter Bean; its pods, however, are not quite so fleshy or so yellow. The seed is white, oblong, measuring about ½ in. in length, a little less than ¼ in. in width and in thickness; very handsome and regular in shape, and ivory-white in colour. Its chief merit is its great earliness, the pods being ready for the market fully eight days earlier than those of any other variety.

White-seeded Dwarf Lyonnais Bean.—A white-seeded sport of the following, the characteristics and qualities being the same. The pods, 6 in. in length, contain six or seven straight, thin seeds, slightly flattened.

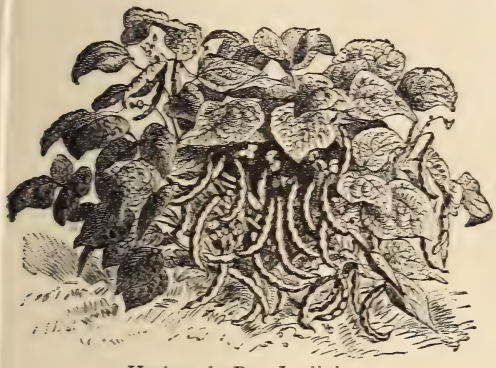
Long-podded Dwarf Lyonnais Bean.—Dwarf, not over 12 to 15½ in. in height; stems strong and branching; leaves long, broad, and lightly crimped; flowers lilac. Pods very long, very fleshy, almost as solid as those of the Intestin Bean, but much longer, more pointed, and frequently curved. Seed long, straight, thin, slightly flattened, dark chamois or light brown in colour. A very productive variety, yielding pods of exceptional quality and beauty. First grown about Lyons only a few years ago, and likely to gain favour everywhere.

Long-podded Dwarf Lyons Bean.

Haricot du Bon Jardinier. — Dwarf, bushy, with short, branching stems; dark green, rather small, and finely crimped leaves; flowers rosy lilac. Pods of medium size, not very long, of the thickness of the little finger, dark green, and free from parchment; seed yellow, cylindrical,

square, or rounded at both ends, resembling closely that of the Hundredfold Bean.

Émile Dwarf Kidney Bean.—An exceedingly dwarf and remarkably early variety, seldom more than 8 or 10 in. high. Leaves medium sized, of a rather dark green, and slightly crimped; flowers white or very pale lilac; pods somewhat curved, 4 or 5 in. long, very fleshy, green before ripening and never turning white or yellow, each containing from five to seven oblong violet-coloured seeds marbled with light gray, about ½ in. long and ⅓ in. broad and thick. This variety, which was recently raised by M. Perrier de la Bathie, seems to us to be both the dwarfest and the earliest of all the Edible-podded Kidney Beans, and is specially suitable for forcing.



Haricot du Bon Jardinier.

Dwarf Purple-podded Bean.—A dwarf Bean remarkable for the dark blackish colour which extends to all its parts; the stems dark purple, the leaves tinged violet, especially towards autumn, and the pods so much so as to appear almost black. Like those of the Purple Runner Bean, the pods become green in the cooking. The plant is bushy, vigorous, half-early, and produces very fleshy, tender pods, distinct from those of any other sort.

Dwarf Purple-podded Skinless French Bean.

Prédome Dwarf Kidney Bean.—The pods and seeds of this variety are exactly like those of the Tall-growing Prédome Kidney Bean, but less abundantly produced, and this deficiency is not redeemed by any other particular merit. The ordinary Prédome Kidney Bean does not require very tall stakes, so that it is not one of those kinds in which the raising of a dwarf variety is any advantage.

Dwarf Prolific Bean.—Dwarf, very bushy and branching; leaves rather small, narrow, but numerous, and vivid green in colour; flowers white or rosy, pods abundant, rather short, almost cylindrical and bright green, containing each from four to six small white oblong seeds, resembling those of the Rice Bean, but a little longer. A very good half-early, hardy, vigorous and very productive variety.

Pink-marbled Dwarf Prague Kidney Bean.—A very dwarf, compact, moderately productive kind, with rather abundant gray-green leaves and lilac flowers. Pods green, straight, or very slightly curved, plentifully striped with red, each containing four or five seeds resembling those of the common Cranberry Bean, but somewhat smaller.

Yellow Canadian Dwarf Kidney Bean.—A very good variety, hardy and productive, but somewhat late, well adapted for market-garden or field culture. Stems rather vigorous, branching, 16 to 20 in. high, thickly covered with medium-sized leaves light green. Flowers lilac; pods very numerous, green at first, changing to yellow, each usually containing five egg-shaped seeds a little smaller than those of the Prague Kidney Beans, and deep yellow, merging into brown about the *hilum*. The dried seeds of this variety are much esteemed. The pods, to be tender, should be gathered before they are fully grown. Although closely resembling the Yellow China Kidney Bean, this variety is distinguished from it by the deeper colour of its seeds, and by its leaves being larger, less crowded together, moderately crimped, and a darker green.

Yellow Canadian Dwarf Kidney Bean.

Oval Yellow China, or **Robin's Egg, Kidney Bean.**—A rather branching kind, with stems about 16 in. high, forming an airy-looking clump. Leaves medium-sized, and of bright green, those at the top of the stem being small and long-stalked; flowers white; pods green, turning yellow when ripe, each containing five or six egg-shaped sulphur-yellow seeds, with a more or less marked bluish circle around the *hilum*. This variety is one of the most

widely cultivated in different parts of the world, and is to be met with almost everywhere in the colonies and America, under the same name and exhibiting the same characteristics.

Oval Yellow China, or Robin's Egg, Kidney Bean (⅓ natural size).

Besides those already described, there are many other varieties of Dwarf Edible-podded Kidney Beans in cultivation, of which we shall only mention the following:—

Variegated White-podded Butter Bean.—Seed variegated, straight, and almost cylindrical in shape, creamy white with spots and marblings of a wine-lees red or red-violet colour. This variety is dwarf and rather tender. The American variety *Early Valentine* may be considered identical with it.

Two-coloured China Dwarf Bean.—This variety does not seem to be very much grown, and yet it is known almost everywhere. It is rather tall and very branching, with white flowers. The pods are of medium size, pretty free from membrane, turning white when ripe, and each containing five or six straight, cylindrical seeds, often square at the ends, and deeply striped with red around the *hilum* to the extent of half the surface of the seed, while the other half is entirely white. A rather productive and very early kind.

Dwarf White Malmaison Kidney Bean.—A productive and moderately early variety, with fine fleshy, bulging pods, which are usually straight. Seed rather long, oval, and white.

Dwarf Aix Kidney Bean.—A variety with small round rosy white seeds. Pods yellow, and rather short, but free from membrane.

Prédome Flesh-coloured Wax Bean. — A dwarf, much-branching variety; pods numerous, short, straight, green; seed rosy, egg-shaped.

Princess Dwarf Kidney Bean.—This is not a very vigorous kind, and its crimped and rounded leaves are very liable to disease, arising either from the attacks of insects or from minute fungus growths It is also rather late. The pods are short and curved, free from membrane, and deep green. The remark made upon the Dwarf Prédome is also applicable to this variety; however, as the ordinary variety of the Princess attains a tolerable height, it may sometimes be advantageous to have a dwarf form of it.

The following are of American origin :—

Crystal Wax White Bean.—Dwarf, but usually running at the top. Pods short and white, almost transparent ; seeds white and oblong.

Detroit Wax or **Butter Bean** is closely related to the following one, the only difference being that its seed, likewise white, is streaked with gray about the *hilum.*

Golden-eyed Wax or **Butter Bean.**—A very early Bean, the pods yellow, large, and abundant. Seed white, short, and strongly marked with orange about the *umbilicus.*

Golden Wax Bean.—A pretty and productive variety, early, with pods free from parchment, and pale yellow. Seed white, partly streaked with red, almost the same as the Early China Bean.

Improved Early Red Valentine Bean.—A good summer Bean, especially if gathered when green. Pods fleshy. Seed resembles that of Blood Speckled Bean.

Iron-pod Wax Bean.—Not a reliably dwarf kind, nor very productive. Pods free from membrane, white, tinged or slightly striped with violet ; seeds white.

New Golden Wax Bean.—A fine, productive, and early kind. Pods free from membrane, and pale yellow ; seeds white, partly marbled with deep red, almost like those of the Two-coloured China Kidney Bean. This is a good variety.

Rachel Dwarf Bean.—Dwarf, productive, with thick bulging pods ; seed oblong, chamois-coloured, blotched white at one end.

Valentine Wax Bean.—A sub-variety of the foregoing with yellow pods.

Wardwell's Kidney Wax Bean.—Dwarf, free from parchment, fairly early, with pods long, yellow, slightly curved, rather flat, and larger than in the Flageolet Wax Canterbury. Seed long, white, with a large violet stain on the *umbilicus.*

White Wax Bean.—Allied to the Dwarf White-seeded Wax Bean, but more leafy, later, and with flatter pods.

Ward's Centenary Bean.—A productive light green variety, with yellow, short, broad pods. Seed the same as that of the Two-coloured Italian Bean—that is to say, like the Prague Bean.

SCARLET RUNNER BEANS

Phaseolus multiflorus, Willd.

French, Haricot d'Espagne. *German,* Arabische Bohne. *Dutch,* Turksche boon. *Italian,* Fagiuolo di Spagna.

Native of South America.—Naturally a perennial, but cultivated as an annual.—These plants, while extremely valuable as vegetables, are esteemed as ornamental climbers, on account of their rapid growth and the abundance of their flowers.

The Scarlet Runner is the most valuable, and frequently the most beautiful, plant in English cottage gardens. It is grown in thousands of gardens, even in London and our large cities and towns, hiding with its quick-running and vigorous shoots many ugly surfaces in summer, and affording a quantity of wholesome food. The pods are often, like many other vegetables, allowed to get too old and hard before being gathered.

Scarlet Runners are generally raised from seed, but the roots may, if desired, be taken up in autumn and preserved through the winter in dry sand or in soil in any shed or cellar from which frost is excluded. If roots thus wintered be brought out and planted about the latter end of May, they come into bearing a fortnight or three weeks earlier than those raised from seed sown at the same time. They are also sometimes left in the ground all the winter, and protected from frost by a good thick layer of coal ashes placed over the rows. Thus treated, they start early in May, if the weather be favourable; and when they have attained the height of 3 or 4 ft., if stopped, will produce beans much earlier than by any other method; but if a profitable crop be desired, this plan is not to be recommended, as the plants do not continue in bearing so long as those that are raised from seed. Among positions chosen for Scarlet Runners may be named small patches of ground at the corners of walks, planting five or six seeds in a patch, 5 or 6 in. apart. Three stout poles or sticks, as used for Peas, are then placed round them in the form of a triangle, bent so as to meet at the top, where they are tied. In small gardens they are often trained over wire or woodwork, so as to form summer-houses or coverings for walks.

Culture.—In large gardens the general practice is to sow in open quarters, and where beans are required as long in the season as they can be obtained, and in large quantities, this is undoubtedly the best plan. They should be allowed a distance of at least 6 ft. between the rows, and if more can be afforded them, all the better. For early crops, a few rows may be made close under a south wall or fence, keeping the points regularly pinched out, in order to keep them dwarf and encourage the earlier development of the pods. In this case they will, of course, need no support, but be allowed to lie in a thick row along the ground. Beans may be produced in this way several weeks earlier than in open quarters, but they do not continue so long in bearing, nor do they produce such abundant crops. Where, however, earliness is an object, this plan may be followed with advantage. Seeds for this purpose may either be sown in heat and transplanted, or sown in the open ground where the plants are to remain. The former way is the more troublesome, but it is the best where covering is at hand to protect them from cold winds and frosts after they have been planted. If sown in heat, the seeds should be put in about the second week in May, either in boxes or pots, boxes being the best; they should be shallow—say, not more than 4 or 5 in. deep—their size in other respects being of no great importance; they should have holes at the bottom for drainage, and should be half filled with half-rotted leaf-mould pressed down rather firmly with the hand; slightly cover with fine soil, and upon this sow in rows 2 in. apart, and cover with about ½ in. of finely sifted leaf-mould, giving the whole a good watering. If placed in a Cucumber or Melon

frame at "work," they will soon be up, and should be kept as near the glass as possible, in order to prevent them from becoming drawn. After they have made two single leaves, they should be taken to a cold frame or pit, gradually inuring them to the open air, so as to make them as hardy as possible previous to planting out, which may be done the first week in June. Before planting them out, they should have a good watering, and be taken out of the boxes with as much earth adhering to them as possible. Plant either in double or single rows, 4 or 5 in. apart, as close to the wall or fence as may be convenient. If they be then well watered and shaded from the sun for a day or two, and protected from cold at night, they will soon make a good start.

Sowing in Open Ground.—The first sowing in the open ground for a general crop should be made not earlier than the first week in May, for if they are up before the end of that month they are liable to be cut off with frost, unless protection can be afforded them—a rather troublesome matter where large quantities are grown. Some draw drills in which to sow the seeds, but the best way is to plant them in with a dibble about 1 in. deep, and then draw the rake over the ground to fill in the holes. Double rows are to be preferred to single ones, as they produce more beans. Each seed should be at least 6 in. apart. Managed in this way they grow strongly, and if stopped when they have attained the height of 5 or 6 ft., they will produce fine large trusses of bloom from top to bottom. Where successions are desired, several sowings must be made. The general rule is to sow one good crop and let that serve all purposes; but if a sowing be made the first week in May, a second a few weeks afterwards, and another not later than July 1st, a continuous supply of young and tender beans will be the result; the last sowing, however, should be only a small one. Sowing in trenches has lately been much practised, and in some cases no doubt with advantage; but when sown in deeply dug ground, trenches are unnecessary. They are generally made with the view of affording an effectual means of watering the plants; but they necessitate the water being applied close to their bases, which is hurtful rather than beneficial to Runner Beans. Where, however, the earliest crop of Scarlet Runners has to be sown in open quarters, the best way is to take out a trench, say, 3 or 4 in. deep, laying the soil on each side of it in ridges. Pea-wires or bent Hazel sticks may then be placed on the rows after the seed has been sown and covered; these will afford good supports for mat or canvas protections until the plants will do without covering; after which time the soil may be put back in the trench, and no further earthing-up will be necessary.

Sticking Scarlet Runners.—Where procurable, common Pea-sticks are best adapted for Runner Beans, but they require to be rather larger and stronger than for Peas; for unless firmly sticked, they are apt to suffer during rough, windy weather. Where, however, such sticks are not obtainable, stout poles, 7 or 8 ft. long, may be used, placing them firmly in the ground at intervals of 6 or 10 ft. apart along each side of the row. Slender sticks cut the same length as the distance the poles are apart may then be tied lengthways along the poles, 1 or 1½ ft. apart; the plants will twine firmly round these, and thus support themselves.

With respect to soil, a light rich loam is best for the Scarlet Runner, and it should be deep, to allow of the roots descending in time of drought. Previously to planting, the ground should be deeply trenched and enriched by means of a liberal supply of good rotten manure. Where, however, time cannot be spared for this, trenches may be taken out, 2 ft. wide and from 2 to 3 ft. deep, according to the depth of the soil. The soil thus taken out should then have plenty of good manure mixed with it, and be replaced in the trench. If this be done in autumn, it will be all the better.

Market Garden Culture.—Scarlet Runners, on account of their taking up more room, are not so much grown in London market gardens as the dwarf French Beans. Their yield is not so great in proportion to the ground occupied, and they are also, unless supported by stakes, more difficult to gather. Around Wandsworth, and in some parts of Kent, within twenty miles of London, however, large fields are devoted to their culture. In some places stakes are used, but, as a rule, the points of the shoots are kept stopped, and the haulm is allowed to rest on the ground. In some respects this latter practice is best, for the rows can be placed close together, and, moreover, the haulm shades the ground and keeps the soil moist, a condition essential to the growth of Scarlet Runners. A rich, light soil and an open situation is that usually chosen for them. Some plant a few rows in warm, sheltered places for early use, the seeds of which are sown in a temporary frame in April, and are transplanted from thence to the open ground as soon as the weather is warm enough to admit of it, but, as a rule, the seed is sown in drills in an open field about the first week in May. Ground previously occupied by Celery suits these Beans perfectly, the soil being deep, well worked, and rich. The seeds are sown in broad drills from 4 to 8 ft. apart, according to whether the plants are to be staked or not. Two rows occupy each drill, and the plants when up are left from 4 to 6 in. apart each way, the thinnings being used to fill up gaps, should such occur. When the plants are fairly up, a ridge of earth is drawn to each side of them, to protect them in some measure from cutting winds and late frosts. When in full flower, the points of the shoots are pinched off, which causes the stem to branch and keep dwarf. Early in July Scarlet Runners appear in Covent Garden, and when that happens French Beans are not in so much demand as hitherto, the majority of vegetable consumers preferring Runners to French Beans. Some market gardeners sow successional crops for autumn use, but the bulk of the produce is brought to market in the end of July and throughout August.

There are several varieties, differing in the colour of their flowers and seeds ; the principal are :—

1. The **Scarlet Runner.**—The seeds of this variety are light wine-colour, blotched with black.

2. The **Black-seeded Runner.**—The flowers of both this and the preceding variety are a uniform scarlet.

3. **Painted Lady, Bicolor,** or **York and Lancaster Runner.**—

The seed of this variety hardly differs from that of the Scarlet Runner, but the flowers are half red and half white, the keel and wings being white, and the standard scarlet-red.

4. **Hybrid Scarlet Runner.**—The seeds of this kind are very distinct, being a gray-yellow blotched with brown; the flowers are variegated like those of the Painted Lady.

5. The **White Runner.**—This is the only kind that is sometimes grown in France as a vegetable. Stems very vigorous, climbing, attaining a height of nearly 10 ft. in a few weeks; flowers white, in numerous long-stalked clusters; pods broad, very flat, seldom containing more than three or four seeds each; seeds white, full, very large, kidney-shaped, sometimes 1 in. long, $\frac{3}{5}$ in. broad, and $\frac{2}{5}$ in. thick. The seeds of Scarlet Runner Beans do not usually ripen well in the climate of Paris. In the south of France, however, this species, which is very hardy and very productive, is grown, to a moderate extent, as a vegetable, and in some other countries it is very highly esteemed. In the north of France, the seeds are too thick-skinned, and are deficient in delicacy of flavour. They contain a great deal of flour, but are inferior, especially in the dried state, to any of the good French varieties of Kidney Beans. In England the pods are most generally used in the young green state, many preferring the flavour of these when quite young to that of the Kidney Beans in a similar stage. They are best pulled when they have attained about two-thirds of their development, just when the seeds begin to form, and if cut lengthwise in narrow strips they cook much more readily.

White Runner Bean ($\frac{1}{12}$ natural size).

LARGE LIMA BEAN

Phaseolus lunatus, L.

French, Haricot de Lima. *German*, Breitschotige Lima Bohne. *Italian*, Fagiuolo di Lima. *Spanish*, Judia de Lima.

Native of South America.—Annual.—Stem climbing to the height of nearly 10 ft.; leaves composed of three triangular leaflets, longer and narrower than those of ordinary Kidney Beans; flowers small, greenish white, in numerous stiff long clusters; pods short, very flat and very broad, rough on the outside, like those of the Scarlet Runner Beans; seeds flat and short, slightly kidney-shaped, with one half nearly always larger than the other, and usually marked with wrinkles or flutings from the *hilum* outwards. The varieties of the Lima Bean are grown in the same manner as the ordinary Tall-growing Kidney Beans, but they are later, and seldom ripen seed in the climate of Paris. The seeds are sent to table either fresh or dried. They are farinaceous, and are highly esteemed in the United States and in some warm countries.

Large Lima Bean ($\frac{1}{1\frac{1}{2}}$ natural size).

Common Lima Bean. — Rather late-growing, never ripening more than a portion of its pods in the climate of Paris, and never ripening there at all in cold damp seasons. Stems thick, and pale green; leaves medium-sized, smooth, and gray-green; seed broad and flat, white, slightly tinged with yellow, over $\frac{3}{4}$ in. long, about $\frac{3}{5}$ in. broad, and about $\frac{1}{4}$ in. thick. There is a green-seeded variety, and another which has

white seed, like that of the type, but marked with a small brown or blackish blotch close to the *hilum*.

Dwarf Lima Bean.—An American variety, distinct, and much appreciated in the United States, where Lima Beans are amongst the vegetables most generally used in the autumn. Its leaves, flowers, and pods resemble much those of the Sieva Bean, but it is a truly dwarf variety, forming low, compact bushes, which do not require any support. Added to this, its earliness ensures its success in many localities where the tall Lima Bean fails to reach maturity.

Mottled Lima, or **Marbled Cape, Bean.**—This differs from the Common Lima Bean only by the peculiar variegation of the seed, in which a large patch of red, more or less deep, surrounds the *hilum*, from which it extends to one end of the seed, which it entirely covers for about one-third of its length ; the remainder of the surface being finely dotted with the same red on a white ground. This variety is almost as late as the Common Lima Bean.

Small Lima, or **Sieva, Bean.**—Stems slender and green ; leaves smaller and darker in colour than those of the Common Lima Bean. This variety of *Phaseolus lunatus* differs from the preceding ones in having much smaller seeds, which in other respects resemble those of the Common Lima Bean, but are seldom over $\frac{3}{5}$ in. in length, about $\frac{1}{3}$ in. broad, and $\frac{1}{6}$ in. thick. The Small Lima Bean is also earlier than the other varieties of *Phaseolus lunatus*, and its first pods ripen regularly in the climate of Paris ; but it is very far from being as productive there as it is in warm climates, where it often continues bearing for three months. In the United States a variety is grown which has the seed streaked with red.

In the United States, where the Lima Bean is one of the most valued of autumn vegetables, there are some half-a-dozen varieties in cultivation, both runner and dwarf. Among those in the first category are the following :—

Burpee's Willow-leaf Lima Bean.—Resembles the Sieva Bean, but distinct from it in its linear-lanceolate leaf, from whence its name of Willow-leaf.

Challenger, Dreer's Improved, Potato Lima Bean.—A very vigorous and fairly productive medium-early variety. The pods are thicker than in the other varieties, and contain three to five large rounded, swollen seeds. A very good kind.

Extra Early Jersey Lima Bean.—Eight or ten days earlier than the Lima Runner Bean, but with smaller seeds.

King of the Garden Lima Bean.—A vigorous variety, producing pods of a length rarely obtained by the other varieties, and containing five or six very large seeds of excellent quality.

Siebert's Early Lima Bean.—Fairly early, abundant, and constant producing ; the pods, of medium size, seldom contain more

than three or four seeds, which are, however, very large and tender.

Among the American varieties of the Dwarf Lima Bean, we may mention :—

Burpee's Willow-leaf Bush Dwarf Lima Bean.—A dwarf form of the Burpee's Willow-leaf mentioned above.

Dwarf Large White Lima Bean, Burpee's Bush Lima Bean.—Only differs from the foregoing in being earlier.

Burpee's Quarter-Century Dwarf Lima Bean.—The same remark applies to this.

Kumerle Dwarf Lima Bean, Dreer's Bush Lima Bean.—A dwarf form of the Challenger Lima Bean described above.

Dwarf Sieva Lima Bean, Henderson's Bush Lima Bean, Wood's New Prolific Lima Bean.—A frankly dwarf form of the Small Lima or Sieva Bean, forming low thick tufts. Earlier than its runner variety, it ripens its seed in the Paris climate. In the United States it is one of the most valued and most cultivated kinds.

DOLICHOS

Several species of the genus *Dolichos* also are cultivated as kitchen-garden plants, especially in warm countries, but of these we shall only mention kinds that can be grown in the climate of Paris.

Black-eyed Dolichos (*Dolichos unguiculatus*, L. *Leguminosæ*).—An annual plant, usually growing from 20 in. to 2 ft. high, with leaves composed of three triangular, elongated leaflets, which are rounded at the base, very smooth, and dark green. Flowers large, changing from white to rose-colour and lilac, with a deeper-coloured blotch at the base of the petals, and growing in twos or threes on a thick stout flower-stalk ; pods pale green, straight, or curved as they become heavy, varying in length from 6 to 10 in., nearly cylindrical, and slightly bulged over the seeds, which usually lie at some distance from each other ; seeds rather variable in size and colour, usually white, short kidney-shape, blunt or square at both ends, slightly wrinkled, and marked with a very pronounced black blotch around the *hilum*. In those countries where, as in Italy, the Black-eyed Dolichos is extensively cultivated, a great number of varieties are grown, which differ from one another principally in the size of the seeds. The climate of Britain is too cold for these plants, but many parts of the Colonies are suited for their culture. They bear a degree of heat which would injure the Beans that thrive with us. CULTURE is the same as that of the Dwarf Varieties of Kidney Beans. This plant, however, is not very particular as to the soil in which it is grown. The young pods are cooked in the same way as green Haricots.

Years ago, M. Durieu de Maisonneuve, director of the Botanic Garden at Bordeaux, introduced a very singular variety of this

plant, the pods of which, instead of being straight, are curved round and round, from which peculiarity it received the name of Ram's-horn Bean. Its culture and uses are the same as those of the ordinary variety.

ASPARAGUS BEAN

Very Early Long-pod Asparagus Bean.

Dolichos sesquipedalis, L.
Leguminosæ.

French, Dolique Asperge, Haricot Asperge. *German*, Amerikanische Riesen - Spargel - Bohne, Langschotige Spargel - Fasel. *Dutch*, Indiaansche Boon. *Italian*, Fagiuolo Sparagio.

Native of South America. — Annual. — Stems climbing, 6 to over 9 ft. long; leaves deep green, rather large, long, pointed; flowers large, greenish yellow, with the standard bent backwards, remarkable for two small parallel auricles which compress the wings and the keel: they are borne either solitary or two together on the top of the flower-stalk. Pods pendent, cylindrical, light green, very slender, and long; not unusually exceeding 1½ ft. in length. The seeds are few for the size of the pod, being generally from seven to ten in number; they are kidney-shaped, and red or pale wine-lees colour with a black circle round the white *hilum*; they are seldom more than about ½ in. long. The plant is cultivated in the south of France, especially in Provence. The culture

is similar to that which is employed in the case of late varieties of Tall Kidney Beans. A good warm position is desirable, the best being one against a wall. The green pods are used in the same way as Kidney Beans.

Long Tonkin Asparagus Bean.—A remarkably early variety, producing in the open ground, in the vicinity of Paris, as early as July or August, long, thin, very tender, and fleshy pods. The seed is rather small for use as a vegetable by itself: it is yellow-white, with a black ring around the *hilum*; it measures less than $\frac{1}{4}$ in. in length, and a little less still in breadth and thickness.

Very Early Long-pod Asparagus Bean.—A sub-variety of the Cuban Asparagus Bean; like the latter, very vigorous in growth and productive, but distinguished from it by its very great earliness, which allows it to mature its seed in temperate climates. The seed is small, chocolate-brown, with a white eye surrounded by a black ring, and measures a little over $\frac{1}{4}$ in. in length and about $\frac{1}{4}$ in. in breadth. Ripens in the climate of Paris.

Giant Extra Early Asparagus Bean.

Giant Extra Early Asparagus Bean.—Distinguished from the preceding ones by the extreme length of its pods, sometimes as much as 3 ft. 3 in. They are very numerous, and broader than those of the Cuban Asparagus Bean, and they contain a large number of red seeds, marked black around the white *hilum*. Ripens in the climate of Paris.

Cuban Asparagus Bean.—A vigorous climbing plant, attaining a height of from 10 to 13 ft.; leaves very large; leaflets long, spear-shaped; flowers of medium size, green, mostly solitary, succeeded by pods of remarkable length, being often over 2½ ft. long when fully grown. They are then inflated by the swelling of the seed, and are about ½ in. broad. The seed, in form and colour, exactly resembles that of the Asparagus Bean, of which this appears to be a variety, but a very distinct one, as it grows much taller and is a thorough climber. It is cultivated, however, in the same way, and the pods are similarly eaten when green, before they are fully grown.

Cuban Asparagus Bean (1/10 natural size).

LABLAB, or EGYPTIAN KIDNEY BEAN

Lablab vulgaris, Savi. *Leguminosæ.*

French, Dolique Lablab. *Italian*, Fagiuolo d'Egitto. *Spanish*, Indianella. *Portuguese*, Feyas da India.

Native of India.—Annual.—A climbing plant, with stout branching stems, which are sometimes from 13 to over 16 ft. long. Leaves compound, with three large broad leaflets of a dark green colour, and slightly puckered or crimped; flowers sweet-scented, large, in long dense clusters; pods rather short, wrinkled, and very flat, growing sometimes seven or eight together on the same stalk; seed short, oval, flat, three or four in each pod; *hilum* white, much marked, occupying nearly one-third of the circumference of the seed. There are two principal varieties, one with white flowers and white seed, and the other with violet flowers and black seed. They are grown in the same way as Tall Kidney Beans. In France they are only grown as ornamental plants, but the seeds are eaten in those countries where they are grown for table use.

Stringless Lablab Asparagus Bean.—The tendency in the ordinary Bean of the stringy fibres to disappear under careful cultivation is also seen in the Lablabs. The variety under consideration is exceedingly vigorous in growth, and yields an enormous quantity of pods. Stem light green, very branching; leaves large, very pointed, and smooth; flowers white, in large trusses; pods

Lablab or Egyptian Kidney Bean.

very numerous, in bunches, yellowish white, slightly downy, short, broad, and rounded at the end. Seed brown, provided with a curious white aril or keel along one of the edges; it is about ½ in in length and a little more than ¼ in. broad and thick.

BEET-ROOT.

Beta vulgaris, L. *Chenopodiaceæ.*

French, Betterave, Bette, Racine d'abondance. *German*, Salat-Rübe. *Dutch* and *Flemish*, Betwortel. *Danish*, Rodbede. *Italian*, Barbabietola. *Spanish*, Remolacha. *Portuguese*, Beterraba.

Native of Europe.—Biennial.—A plant which, in the first year of its growth, forms a more or less long, thick, and fleshy root, and runs to seed in the second year. The fruiting stem is about 4 ft. high, and as the calyx of the flower continues to grow after the flower has faded, and completely covers the seed, it becomes corky in substance and appearance, and forms what is commonly called Beet-seed, but which is really a fruit, nearly as large as a pea, and almost always containing several seeds. The true seeds are very small, kidney-shaped, brown, and with an exceedingly thin skin. They retain their germinating power for six years or more.

It is not exactly known when the Beet-root was first introduced into cultivation. The ancients were acquainted with the plant, but we have no account from which we can be certain that they cultivated it. Olivier de Serres mentions it as having been introduced into France from Italy not long before the time at which he wrote.

CULTURE.—Beet is sown, where the crop is to grow, in the open air, as soon as the spring frosts are over, and best in drills, for greater convenience in hoeing ; and the young plants are thinned out, with a greater or less space between them according to the size of the variety grown. They prefer a deep, rich, well-manured, and well-tilled soil. It is a good plan to dig in the manure in the autumn, as fresh strawy manure is apt to cause the roots to become forked. A few waterings in dry weather will be the only additional attention required by the growing plants, the roots of which come to maturity from July to the end of autumn, according to the time at which sowings were made.

A deep sandy loam, trenched to a depth of at least 30 in., suits it better than any other kind of soil, and if poor, it should have been well manured for the previous vegetable crop. In such soil, the evenest and cleanest roots are produced; but Beet will also succeed on calcareous soils, if of sufficient depth. Heavy or stiff loams intended for its growth should be thrown up into ridges before winter sets in, so as to get well pulverised, and, if very heavy, a light dressing of coal ashes worked into them would prove advantageous, and materially assist in producing "clean" roots. Stable manure should not be added to the soil unless it is trenched deeply, when it may be placed quite at the bottom of the trench ; if otherwise, as soon as the roots reach it they become forked, instead of making straight and well-shaped roots; therefore, if the soil be so poor as to require manure, a sprinkling of guano or

superphosphate, applied to it between the rows as soon as the plants are fairly established, will be found the best stimulant.

SOWING, ETC.—Beet must have an open situation; it never grows or looks satisfactorily when grown under the shade of fruit trees—a position to which it is often relegated; but this should not be, for most varieties of Beet are ornamental as well as useful, and one would, therefore, suppose that a conspicuous place would be selected for them. The time for sowing varies from the beginning of April to the middle of May. In the majority of soils, about April 20th will be found to be the best time; if sown too early, especially if the soil be rich, it is liable to run to seed, or the roots to grow too large—medium-sized roots being always most highly valued, more particularly for salads. The seed should be sown in drills 15 in. asunder, and 1½ in. deep; and it should be covered in by hand—a rake should not be employed for this purpose, as by its use half the seed is often drawn out of the drills, and the plants come up irregularly. Thin out the seedlings, as soon as they are large enough to handle, to 9 in. apart in the row, and if dark, bronzy leaved kinds be grown, see that the greenest-looking plants are drawn out. After thinning has been completed, by means of the hoe frequently loosen the soil between the rows—an operation which will aid the growth of the Beet, and at the same time keep down the weeds. If blanks, through failures, occur in the rows, they should be filled up with young plants in showery weather, though roots obtained in this way rarely prove satisfactory, being small and irregular in growth; still, it is worth doing, if only for the sake of appearance.

VARIETIES.—As a rule, the colour of the roots is the first consideration; but flavour should in our opinion have precedence, rather than colour. Where both are combined, however, as is the case in Dell's Crimson, which has many synonyms, such a variety must be the best to grow; moreover, this variety has the additional attraction of deep crimson-coloured foliage, and is of no small importance as an ornamental plant. Other good varieties are—Henderson's Pine-apple, Dimmick's Nonpareil, Nutting's Dwarf Red, and Egyptian Turnip-rooted, the last being more especially valuable for early summer supply, as it comes into use nearly a fortnight earlier than any of the long-rooted sorts. It is also suited for growing on shallow soils, and, although pale in colour, is of excellent quality.

STORING BEET-ROOT.—Frost is most injurious to Beet-roots, which should, therefore, be dug up by the end of October, or provision should be made for protecting them in the ground, in the event of severe weather setting in. Stable litter, hay-bands, or Bracken (*Pteris aquilina*) will effectually protect Beet; but, where neatness is studied rather than utility, this manner of protection should not be thought of. In that case, the roots should be dug up at the time mentioned above, and "clamped" in the same way as Potatoes; or they may be layered in dry soil or sand, in a cool shed,—but it must be really cool, or they will start into growth, and the flavour will go.

For market-garden culture, a good crop of Beet-root is very remunerative, and when there is a ready sale for it in the market it pays better than any other root crop. The main sowing is made to succeed Wallflowers, Radishes, Spinach, or Cabbages, and it is also often grown

on Asparagus ridges, between rows of fruit bushes, and between lines of Vegetable Marrows; and even when growing in the open field, it is often intercropped. An early sowing is usually made, in lines about 15 in. apart, in the first week of May, between rows of Cabbages or Lettuces, recently planted; after the seeds germinate and the plants are well above ground, they are thinned out into patches with short hoes, and when they have formed a few rough leaves they are thinned out to single plants by hand. Some make a sowing even as early as in March, in a sheltered piece of ground, for yielding an early supply. In harvesting a crop of Beet-root which has to be kept through the winter, the roots are carefully dug up, preserving them their whole length intact, and keeping 2 in. of the stalks attached after the leaves have been twisted off by hand. They are then built in pyramidal-shaped clumps, and covered with straw, over which a coating of soil is put to exclude frost. Leaving the roots in the ground is the best plan, as their proper flavour is thereby preserved better than when lifted and stored: but they are liable to be injured by frosts in January, or to be locked in the soil when it might be convenient to send them to market. Some of the darkest and finest-shaped roots are kept for seed-bearing plants, and are planted in some out-of-the-way nook by themselves. Transplanting Beet is only resorted to to fill up vacancies in the rows, as in the operation the main roots are often broken, or otherwise so damaged as to render it almost impossible for them to produce good roots. Dark crimson-coloured Beets are those which are most esteemed by market gardeners, most of whom grow their seeds saved from selected plants. Carter's St. Osyth is a favourite kind with many growers, but none are liked so well as the selected Dark Crimson.

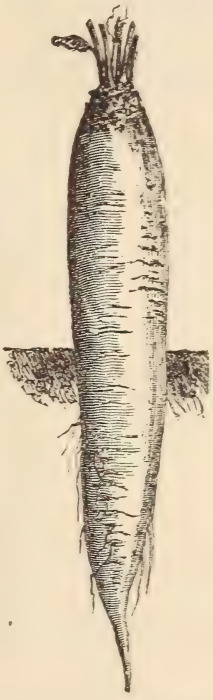
USES.—A great number of varieties are grown for table use, the roots being either plainly boiled or baked, or pickled or used for salads. Other varieties are used for feeding cattle, or for the manufacture of sugar, for which reason we do not mention them. When lifted, the tops should not be cut, but screwed off, and the roots should not be injured more than can be helped, as injury to them induces decay. Before cooking, the roots should be well washed, but not peeled or scraped, or the skin bruised; for, if such be the case, much of the saccharine matter escapes during the boiling. Boiling doubtless renders Beet most agreeable to the generality of consumers; though some prefer to bake it, by which a deeper colour and a firmer texture of flesh are ensured.

GARDEN BEET

I. RED-FLESHED VARIETIES

Large Blood-red Beet.—This is the kind which is most extensively grown in France, being intermediate between the garden and the field varieties. It is very productive, very hardy, and of good quality for table use. It is also the kind which is most

frequently brought ready boiled to the market-places. Root almost cylindrical, as thick as a man's arm, and 1 ft. to 14 in. long, growing with over one-third of its length overground, sometimes becoming tap-rooted and forked at the extremity. The colour of the skin of the part covered by the soil is of a uniform deep red, while the part overground is more or less reddish and wrinkled. Flesh deep red; leaves large and stout, green marbled and veined with red; leaf-stalks very red. The large size of the roots of this variety and the heavy crop which it yields recommend it as the best of the kitchen-garden varieties for field culture. For some time past, very red-fleshed and red-juiced kinds of Beet have been much sought after for various economic or manufacturing purposes, and the variety now described is eminently adapted for such uses.



Large Blood-red Beet ($\frac{1}{8}$ natural size).

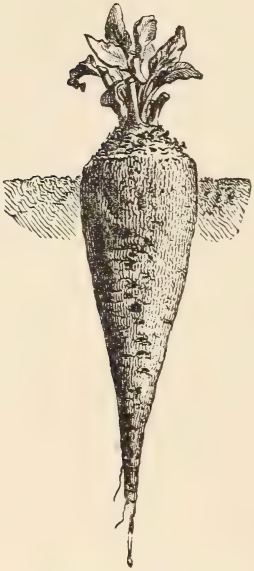
Gardanne Beet, which is in high repute in the south of France, comes very near this variety, differing from it only by being a little thicker under the neck, and growing with less of the root overground.

Long Smooth Blood-red, or Long Smooth Rochester, Beet.—Root very long, almost cylindrical, attaining a length of 14 in., with a diameter of hardly 2 in., and almost entirely underground; skin smooth and uniform, of a dark red colour; flesh blackish red. A handsome variety, of good quality, and keeping well. To grow well, it requires a deep, well-dug, and well-manured soil.

Rough-skinned Red Beet-root (*B. Rouge Crapaudine*).—One of the oldest varieties, and distinguished from all the others by the peculiar appearance of the skin, which is black and broken by small cracks or crevices, like the bark of a young tree, or perhaps still more resembling the skin of a Black Winter Radish. Root rather long, almost entirely buried in the soil, and frequently somewhat irregular in shape; flesh very red, sugary, and firm; leaves numerous, slightly twisted, spreading rather than erect, almost entirely green, with red stalks. This variety affords a striking instance of the absence of any invariable correspondence between the colour of the flesh of a Beet-root and the colour of its leaves. No other kind has deeper-coloured flesh than this, and yet many have the leaves much more deeply tinged with red.

The Beets known as the Little Negress of Rennes and the Red Beet-root of Diorières do not appear to differ from this variety.

Deep Blood-red Castlenaudary Beet.—Root small, nearly buried in the soil, rather slender, straight, sometimes with a tap-root of some length; skin black-red; flesh very dark red, compact, solid, and very sugary; leaves dark red, with long stalks. This variety does not yield a heavy crop, but its quality is excellent. The English varieties Long Deep Red and Very Dark Red are



Rough-skinned Red Beet.

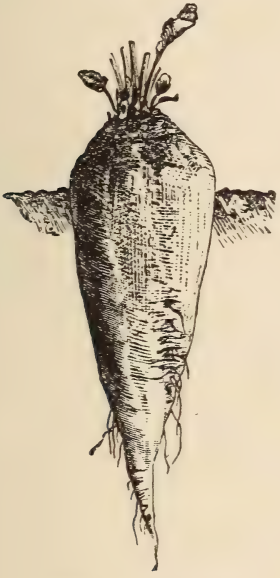
Deep Blood-red Castelnaudary Beet.

very similar to this. The same may be said of Dobbie's New Purple and Goldie's Superb Black, their roots being only a little thicker.

Whyte's Black Beet.—Synonyms: Osborn's Improved Blood-red, Barratt's Crimson, Oldacre's Blood-red, Perkins's Black.—A handsome medium-sized kind. Root long, thick under the neck, sometimes a little angular instead of being regularly round; skin smooth, of a very deep slate colour; flesh black-red, firm, and of good quality; leaves rather stout, slightly crimped and undulated, of a brown-red colour, more or less tinged and mixed with green; leaf-stalks red. This is one of the best varieties; the flesh is very deeply coloured, and the root can be easily distinguished from all others by the gray or leaden hue of the skin. It is fairly productive, and keeps well.

Dwarf Red, or Nutting's, Beet.—A very handsome variety. Root very symmetrical in shape, small, slender, long, deeply sunk in the soil; leaves deep red, half-erect, uncrimped, slightly undulated, and much longer than broad.

Dell's Dark Crimson Dwarf Beet.—There is no great difference worth mentioning between this variety and Nutting's Beet, except that the foliage is larger, well crimped, and turned backwards; it has the same root and is used sometimes for bordering. This variety, like the preceding one, produces small roots,



Whyte's Black Beet.

Nutting's Dwarf Red Beet.

but to make some amends for this, they can be grown very close together. Both varieties are moderately early.

Many other English varieties resemble the Dwarf Red and Dell's Crimson, without being exactly like either of these kinds. Of these we will only mention Bailey's Fine Red, Sang's Dwarf Crimson, and the Saint Osyth Beet. The two following varieties are to be commended: *Omega Dwarf-topped*, a medium-sized, handsomely shaped Beet, with delicately sweet, rich crimson flesh; and *Nonpareil Dwarf Green-top*, a very dwarf kind, with small, well-formed, scarlet-fleshed roots.

Dracæna-leaved Beet.—A very pretty and peculiar variety, with a slender lengthy root, almost the same shape as Nutting's Beet, but smaller; it differs from that by its narrower, longer,

more numerous leaves, which are generally curved in the shape of a sickle, the top forming a very elegant rounded nosegay, which at first might be mistaken for the foliage of a Dracæna or a Croton. While thus ornamental, it is not without merit as a vegetable.

Covent Garden Red Beet.—A very handsome variety, thicker and smoother than the preceding sorts. The root is long ovoid rather than spindle-shaped, smooth and entirely underground; the flesh a deep blood-red, the foliage rather light, tinged purple turning to very dark brown in the autumn.

The varieties of the Covent Garden Beet are *Dewar's Dwarf*

Dell's Dark Crimson Dwarf Beet.

Dracæna-leaved Beet.

Red, *Drummond's Nonsuch*, and *Ferry's Half-long* and *Half-long Blood Beet*, though perhaps a shade shorter; but the difference is so trifling as to be negligible.

Black Queen Beet.—In some respects this new variety resembles the Pear-shaped Strasbourg Beet, with smaller, compacter leaves, more proportionate to the size of the root. The root is conical in shape, both above and below ground, but more tapering at the base than the Strasbourg. The flesh is almost black; the leaves are also deep coloured. They are of fair size, slightly crimped, short and almost round, and at no time absolutely green, which is seldom the case with black-rooted Beets, even such varieties as have the darkest leaves in the autumn. The Black Queen Beet

may be used, like the Dell's Beet or the Dracæna-leaved Beet, for bordering or for dark-coloured beds.

Strasbourg Pear-shaped, Non Plus Ultra, or Intermediate Dark Beet.—An intermediate variety, very deeply sunk in the soil. Skin and flesh of an extremely deep red, the leaves and leaf-stalks almost black. This is one of the deepest coloured of the kitchen-garden varieties. It is not a very productive kind, and the leaves and leaf-stalks are rather large in proportion to the size of the root,

Covent Garden Red Beet.

Black Queen Beet.

which, unlike that of the Dwarf Red variety, when pulled, belies the promise given by the foliage.

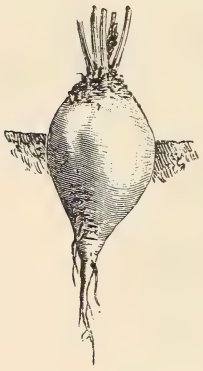
Trévise Early Salad Beet, or **Turin Red Spring Beet.**—A very pretty Salad Beet, intermediate between the half-long and the round or flattened varieties. Its top-shaped form proclaims its relationship with the long-rooted sorts. It is remarkable for its light foliage and slender leaf-stalks. No other Salad Beet, not even Nutting's Beet, produces so few leaves.

Dewing's Early Blood-red Beet.—A handsome variety of American origin, it comes between the Early Blood-red Turnip Beet and the Eclipse Beet, mentioned below. The root is thick, smooth, rounded above the ground, but slightly conical and

top-shaped below. The flesh is good in colour, but not very dark. The leaves are of no great size, rather light, green tinged with red during summer, but a more uniform brown-red colour towards autumn, and are much like those of the Egyptian Beet.*

The Arlington Favourite is a good American variety of the Dewing. It is high coloured and scant in leaf, and differs very little from the original.

Eclipse Turnip Beet.—May be described as a spherical Egyptian Beet. Like the latter, it is very early, smooth, and has a very scant foliage, but it is distinguished from it by its globular root, which, when of the same diameter, is about twice as productive, and has, moreover, the advantage of attaining a good size without



Strasbourg Pear-shaped Beet ($\frac{1}{3}$ natural size).

Trévise Red Flat Beet.

Dewing's Blood-red Turnip Beet.

spoiling its shape. Originated in America, it is undoubtedly the best Salad Beet yet received from that country.

Allied to this variety is the Model Beet, an English Beet with leaves much reduced in size and highly coloured flesh.

The **Crimson Globe Beet**, also an English variety and of recent introduction, possesses characteristics very similar to those of the Eclipse Beet. The root is clean, very smooth, rather long than broad, with pinched extremities and well-coloured flesh—that is to say, deep violet slightly zoned, tender and saccharine; the foliage scant, and in colour brown-red.

Early Blood Red Turnip-rooted Beet.—An early variety, with a round and half-flattened root, scarcely half buried in the soil; skin dark violet-red; flesh a fine red; leaves rather large, green, broadly marbled and veined with brown-red. To this variety may be referred, as almost identical with it, the kinds named Flat

* A Non-bleeding Beet, see p. 759.

Blackish Red, Black-leaved Round Red, and the English variety Early Blood-red.

The American varieties, Edmand's Early Turnip, Bastian's Blood Turnip, and Early Blood Turnip Beet, come very near to this, even as regards earliness and colour.

Detroit Dark Red Turnip Beet.—One of the Beets the most cultivated in the United States, it appears to be a selection of the Early Blood-red Turnip Beet. It has a round, somewhat ovoid root, very smooth, and a fine deep blood-red colour. The flesh is bright red, tender and good in quality; the foliage very erect, scant, and in colour green with deep red veinings.

Egyptian Dark Red Turnip-rooted Beet.—An exceedingly early variety, and certainly the best of the early kitchen-garden

Eclipse Turnip Beet.

Early Blood-red Turnip-rooted Beet.

kinds. Roots rounded and flattened, especially underneath, almost entirely underground, and resting on the surface (to which it is held down by a rather slender tap-root), very symmetrical in shape until it has grown larger than the fist, when it frequently becomes irregular or sinuated in form as it increases in size. Skin very smooth, violet or slaty red; flesh dark blood colour; leaves slight, brown-red, more or less mixed with green; leaf-stalks long and slender, and bright red. When sown in the open air under favourable conditions, the roots of this variety may be pulled for table use in June, when they are about as big as a small orange, their quality being then at its best. If sown on a hot-bed, they may be pulled still earlier. Like the Dwarf Red variety, the roots of this kind also may be grown very close together.

Early Flat Bassano Beet.—A stout-growing, broad, flat variety, with numerous but rather slender green leaves; leaf-stalks tinged

with red; skin of the root grayish red, especially the part above ground; flesh in bands or zones of white and rose, firm, sugary, delicate, and highly esteemed in some countries. This is a moderately early and very productive kind.

The following varieties deserve to be mentioned as very distinct:—

The Cheltenham Green-top Beet.—An English variety, with very long, clean, regularly tapering root. A very deep-rooting variety, it offers even in a more marked degree than the Rough-skinned Beet a contrast between the colour of the foliage, which is pale green, and that of the root, which is a very intense red.

Crosby's Egyptian Beet.—A variety much esteemed in the United States; the only similarity it bears to the Extra Early Egyptian Beet is in its great earliness. It has a thicker and

Egyptian Dark Red Turnip-rooted Beet ($\frac{1}{3}$ natural size).

Early Flat Bassano Beet.

altogether larger, but less highly coloured, root than its Extra Early namesake, being a distinct vermilion. It is scant in leaf, and is one of the earliest varieties.

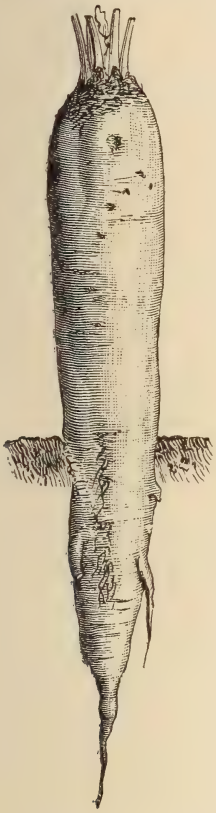
Lentz Beet.—Also of American origin, and very early. The root is top-shaped, and the flesh red with lighter coloured zones. The foliage is very short and green, tinged with brown.

Short's Pine-apple Beet, Pine-apple Dwarf Red, or Henderson's Pine-apple Beet.—A compact-growing kind, with a rather short root, which is tap-rooted, and about 2 or 3 in. in diameter; flesh very dark in colour; leaves stiff and spreading, red with orange-coloured stalks.

Victoria Beet.—A variety of German origin, with an intermediate root of a deep red colour, less remarkable for its value as a vegetable than for the singular metallic appearance of its leaves, and quite as much grown for ornamental as it is for kitchen-garden purposes.

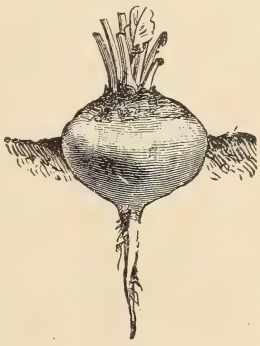
II. Yellow-fleshed Varieties

Long Yellow, or **Orange, Beet.**—This variety is almost as much grown in the fields as in the kitchen-garden, and is the kind which is principally cultivated by the cowkeepers of Paris and its vicinity, on account of its highly reputed nutritious and milk-producing qualities. Root long, almost cylindrical, about half of it above-ground; leaves erect, stout, green, with yellow stalks; skin of root orange-yellow; flesh golden-yellow, marked with zones more or less pale, and sometimes nearly white. It is the most productive and one of the best Yellow-fleshed kinds.



Long Yellow, or Orange, Beet.

Yellow, or **Orange, Turnip Beet.**—Root slightly top-shaped, with a stout tap-root; skin orange-yellow; flesh bright yellow, zoned with pale yellow or white; leaves rather short and broad, crimped, undulated, with yellow ribs and stalks. A very sugary and fine-flavoured variety, the root, when well boiled, becoming tinged with orange. It is one of the best additions which of late years has been made to the list of kitchen-garden plants.



Yellow, or Orange, Turnip Beet.

BORAGE

Borago officinalis, L. *Boraginaceæ.*

French, Bourrache officinale. *German*, Borretsch. *Flemish*, Bernagie. *Italian*, Boragine. *Spanish*, Borraja. *Portuguese*, Borragem.

Native of Europe and North Africa.—Annual.—Stems 12 to 18 in. high, hollow, bristly, with pointed hairs; leaves oval, rough, and haired like the stems; flowers in a scorpioid cyme, about 1 in. broad, of a fine blue colour in the common variety, sometimes violet-red or white; seeds rather large, gray-brown, oblong, slightly

curved, streaked, and marked with a projecting midrib or ridge. Their germinating power continues for eight years.

Borage (⅛ natural size).

CULTURE AND USE.—This plant can be grown without trouble, by sowing the seed in any corner of the garden at any time from spring to the end of autumn. It will come into flower in a few months. In the London market-gardens it is grown in temporary frames out of doors for supply during late autumn and winter; for spring use, seedlings are raised in heat and transplanted into glass-covered frames, which can be easily removed when the weather is sufficiently mild to admit of the plants being exposed without injury. Throughout the summer and autumn it is as easily grown out of doors as any common annual or weed, yet in remote country districts we have seen people much puzzled to find a sample when they required it! It is so vigorous and hardy that there need be no difficulty in country places in naturalising it on any half-waste place, chalk bank, steep slope, or copse; a handful might be found in such a place in case its culture had been forgotten in the garden. It is one of the pretty true blue flowers, and almost worth growing in certain places for its beauty. It is naturalised in various counties in England, but is not a true native plant, belonging naturally to the shores of the Mediterranean, where so many of our old garden plants are native. It is sold chiefly to hotel-keepers for making claret-cup. The flowers are used for garnishing salads, but the plant is grown for the manufacture of cordials.

BROCCOLI.—See after **Cauliflower**

BRUSSELS SPROUTS.—See after **Cabbage**

BUCK'S-HORN or HART'S-HORN PLANTAIN, or STAR OF THE EARTH

Plantago Coronopus, L. *Plantagineæ.*

French, Corne-de-cerf, Pied-de-corbeau. *German*, Hirschhorn-Salat. *Flemish*, Versblad, Hertshoorn. *Italian*, Corno di cervo, Coronopo, Erba stella. *Spanish*, Estrellamar, Cuerno de ciervo.

Native of Europe.—Annual.—Leaves numerous, long, narrow, deeply lobed, bearing a few long hairs and forming a very regular

rosette close to the ground ; stems each surmounted by a spike of minute yellow flowers, which are succeeded by small membranous capsules filled with very small, egg-shaped light brown seeds. Their germinating power continues for four years.

Buck's-horn or Hart's-horn Plantain, or Star of the Earth ($\frac{1}{8}$ natural size; separate leaves, $\frac{1}{2}$ natural size).

CULTURE.—The seed is sown, where the crop is to grow, either in spring or autumn ; in either case, the ground is cleared off at the end of summer. The plants require no attention, except whatever weeding is needed to keep the ground clean, in addition to plentiful waterings, without which the leaves soon become hard and leathery. As the plant yields abundantly, the sowings are usually made on a limited scale.

USES.—The young leaves are used for mixing in salads. Very rarely cultivated in England. It is a widely distributed and common native plant in sandy and stony places, especially near the sea.

EDIBLE BURDOCK, or GOBO

Lappa edulis, Hort. *Compositæ.*

French, Bardane géante. *Japanese*, Gobo.

Native of Japan.—Biennial.—Radical leaves very large, heart-shaped, somewhat resembling those of the Patience Dock, but not so much elongated ; stem red, very branching ; flowers violet-red, in heads bearing hooked scales like those of the Common Burdock ; roots of the kind known as tap-roots, cylindrical, rather fleshy and tender when they are young ; seeds oblong, grayish, with a hard covering, resembling that of the Artichoke. Their germinating power lasts for five years.

It is doubtful whether this plant is specifically distinct from the Common Burdock (*Arctium Lappa*), a very common weed in all parts of Europe. It is certainly larger in all its parts, but this might be the result of cultivation, as it has long been grown in Japan in exactly the same manner as Salsafy and Scorzonera are with us.

USES.—The roots, which grow from 1 ft. to 16 in. long, are boiled and served up in various ways. The plant was introduced

into Europe from Japan by the traveller Von Siebold, who says that it succeeded well in his garden at Leyden. In order to have the root tender and agreeable to the taste, it should be used when it is two and a half or three months grown. If it is left until it is fully grown, it branches and becomes hard and almost woody, so that it is not surprising that when sent to table in that state, it has often been pronounced detestably bad, whereas if eaten when young, as it is by the Japanese, although it cannot be termed delicious, it is certainly not a bad vegetable.

Edible Burdock, or Gobo ($\frac{1}{8}$ natural size).

Almost all hardy biennial plants with fleshy roots should be experimented on with the view of converting them into kitchen-garden vegetables, and many, perhaps, might be available for this purpose under the condition of their roots being not too fibrous, nor possessing any disagreeable flavour which cooking would not remove. The Wild Carrot and the Wild Beet are not superior in quality to the Burdock, and the second of these plants certainly has a more disagreeable flavour, and yet continued cultivation and persevering selection have converted these two plants into excellent vegetables, producing roots which are large, tender, and well tasted, at least when they are cooked, and quite different from what they are in the wild state. There is no reason, then, why the Burdock should not be a good table vegetable, if the plant appears to be worth the trouble. It is hardy, vigorous, and of rapid growth ; its roots are long and naturally fleshy, and consequently can be increased in size and made tender by judicious cultivation. At the present moment, in the condition in which we now have the plant, a bed of it will yield as heavy a crop as a bed of Salsafy, and in half or one-third of the time. As a vegetable it is deserving of serious consideration.

SALAD BURNET

Poterium Sanguisorba, L. *Rosaceæ.*

French, Pimprenelle petite. *German*, Garten-Pimpinelle. *Flemish* and *Dutch*, Pimpernel. *Italian*, Pimpinella. *Spanish*, Pimpinela. *Portuguese*, Pimpinella.

Native of Europe.—Perennial.—Radical leaves, pinnate, with an odd leaflet; leaflets oval-rounded, very much toothed; stems usually

very erect, 16 in. to 2 ft. high, angular, branching, and ending in spikes of female flowers, the flower at the base being male or hermaphrodite; seeds oval, four-angled, with more or less prominent ridges on the angles, and reticulated on the sides Their germinating power lasts for three years. The Salad Burnet is an exceedingly hardy and long-lived plant, and grows wild through the greater part of France.

Garden Burnet.

CULTURE.—The seed is sown in spring or at the end of summer, usually in drills 10 to 12 in. apart. It is often grown as an edging to beds of other vegetables, and may also be sown in beds by itself. The plants do not require any attention. The leaves are cut for use with a knife or sickle, and successional cuttings are made so as to have a constant supply of fresh young leaves. Leaves are produced in greater abundance and for a longer time if the plants are not allowed to flower.

USES.—The young, tender leaves are used as salad; they have a peculiar flavour, resembling that of the Green Cucumber.

CABBAGE

Brassica oleracea, L. *Cruciferæ.*

French, Chou cultivé. *German*, Kohl, Kraut. *Flemish* and *Dutch*, Kool. *Danish*, Kaal. *Italian*, Cavolo. *Spanish*, Col. *Portuguese*, Couve.

Cabbage, a plant which is indigenous to Europe and Western Asia, is one of the vegetables which have been cultivated from the earliest times. The ancients were well acquainted with it, and certainly possessed several varieties of the head-forming kinds. The great antiquity of its culture may be inferred from the immense numbers of varieties which are now in existence, and from the very important modifications which have been produced in the characteristics of the original or parent plant.

The Wild Cabbage, such as it still exists on the coasts of England and France, is a perennial plant with broad, lobed, undulated, thick, smooth leaves, covered with a glaucous bloom.

The stem attains a height of from nearly 2½ to over 3 ft., and bears at the top a spike of yellow, or sometimes white, flowers. All the cultivated varieties present the same characters in their inflorescence, but, up to the time of flowering, they exhibit most marked differences from each other and from the original wild plant. In most of the Cabbages, it is chiefly the leaves that are developed by cultivation; these, for the most part, become imbricated or overlap one another closely, so as to form a more or less compact head, the heart or interior of which is composed of the central undeveloped shoot and the younger leaves next it. The shape of the head is spherical, sometimes flattened, sometimes conical. All the varieties which form heads in this way are known by the general name of Cabbages (*Choux pommés*), while other kinds with large branching leaves, which never form heads, are distinguished by the name of Borecole or Kale (*Choux verts*).

In some kinds, the flower-stems have been so modified by culture as to become transformed into a thick, fleshy, tender mass, the growth and enlargement of which are produced at the expense of the flowers, which are absorbed and rendered abortive. Such are the Broccolis and Cauliflowers. In other kinds, the leaves retain their ordinary dimensions, while the stem, or the principal root, has been brought by cultivation to assume the shape of a large ball or Turnip, as in the case of the plants known as Kohl-Rabi (*Choux-raves*) and Turnip-rooted Cabbage or Swedish Turnip (*Choux-navets*). And, lastly, there are varieties in which cultivation and selection have produced modifications in the ribs of the leaves (as in the Couve Tronchuda), or in the axillary shoots (as in Brussels Sprouts), or in several organs together (as in the Marrow Kales and the Neapolitan Curled Kale). We make no mention here of the Colza, another variety, grown exclusively for the sake of its seeds, from which an oil is obtained, and which, therefore, is to be classed amongst the plants which are grown for economic or manufacturing purposes.

CULTURE.—The different kinds of Cabbages vary so much in constitution and treatment that it is impossible to lay down precise rules for the cultivation even of each entire class or section. We shall, therefore, when describing each variety, give instructions as to the proper times for sowing and planting it, merely mentioning here a few particulars which are applicable to the cultivation of almost all kinds of Cabbages. Further information as to cultivation will be found under the head of Early Cabbages, and also under the Drumhead varieties.

A cool moist climate seems to be the most suitable of all for the culture of Cabbages, which generally grow to greater perfection in districts near the sea-coast than they do in either low-lying or

elevated inland parts of the country. Heat and drought are injurious to them, while they grow well in moist, foggy weather, even when somewhat cold. They like a clayey, rather stiff soil, rich in manure and decayed organic matter; they do not seem to mind a little sourness in the soil, and grow well in ground that has been newly broken up. In the kitchen-garden, Cabbages should occupy the coolest and moistest positions, except the early spring kinds, which require a warm and sheltered aspect; the ground should be deeply dug and plentifully manured, and always kept clean and free from weeds. The plants must be watered from time to time during the summer, and care be taken to prevent them from being overrun by the caterpillars of the white Cabbage butterfly, which, if not attended to, will damage them severely.

Sowing and Planting.*—The most important sowings of Cabbage are those which are required to form a supply through the spring and early summer months. These sowings should consist of several varieties that succeed each other in coming into use. However, very early kinds should not be sown too early in the summer, as there is a possibility of their running to seed in dry weather. From the middle of July to the middle of August is the time usually chosen for sowing; but much will depend upon the season, soil, and locality. The beginning of August will in most places be found to be the best. Plants from seeds sown at that time are generally ready to plant out by the end of September or beginning of October, and they have then ample time to get established before the winter sets in. For autumn supply a sowing should be made from the middle of March to the beginning of April, and planted out in June and July—they then come into use in August and September; and if a second and rather larger sowing be made in the last week in April, and planted out in July and August, they will come into use from October to December; and a small sowing of a dwarf kind that hearts quickly, sown in May, will form nice little heads for use in January, which, with the Greens produced from the stumps of those that have been cut, will last until the spring Cabbage comes in. Cabbage plants intended to stand the winter are best planted with a crowbar in firm undug ground, such as has recently carried a crop of Onions, or other surface-rooting plants that have not impoverished the ground too much. The ground must, of course, have been well manured for the crop previous to Cabbage, or good results cannot be expected. A firm, stiff, rich soil is best for Cabbages; for if grown in loose, light soil, they do not "heart" so well, neither is the quality so good. Cabbage seed should at all times be sown on light rich land, and the plants should not be allowed to overcrowd each other before they are put out, but as soon as large enough to handle be pricked out 6 or 8 in. apart, or be thinned out, and the remainder transferred to their final positions as soon as they are sufficiently large. The distance to plant them apart depends upon the variety grown; but 2 ft. between the rows, and from 15 to 18 in. from

* See also p. 759.

plant to plant in the rows, will generally be found sufficient space if the ground be in good heart.

CUTTING.*—A little more attention might be paid to this than is generally the case; for although Cauliflowers and Brussels Sprouts cannot always be had just when wanted, tender Cabbage may be had with very little management. Supposing we plant Cabbages in autumn, they will come into use tender towards the beginning of summer; but if the household be generally not able to use them as fast as they grow, the heads are allowed to swell until they burst, or go to seed or rot, and eventually become quite useless for cooking purposes. In gardens from which large houses have to be supplied, Cabbages are generally wanted as soon as they are ready, and a number of heads are cut daily; but the experienced gardener does not cut the head off at the surface of the soil, but just at the neck, leaving a few of the bottom leaves. Consequently, before the quarter has been cut over the first-cut plants have made another break, and become furnished with a whole cluster of young succulent heads, which heart immediately, and are fit to cut before the first heads are quite finished. The plants will even break and heart a third time, and in this way a plot of Cabbage may be made to afford a supply nearly all the year round The vigour, free growth, and tenderness of the heads will be greatly promoted by frequent stirrings of the soil between the rows, and mulching with any loose material, such as short Grass or leaves, at command. Cut your Cabbages, therefore, even if you have to give them away to your neighbours, before the heads get over-ripe and useless, and you will have a continuance of young and tender heads, which are greatly to be preferred to those which are large, white, and hard.

The Cabbage is one of the most important of green vegetables for market-garden culture, and although not considered by many so profitable on account of its gross-feeding character, it comes into use when there is little else to send to market, and often realises high prices. In spring large areas of Cabbages may be seen about Wandsworth, Fulham, Gunnersbury, and, in fact, all round the suburbs of London. The Cabbages sent to market in April, May, and June are the produce of seed sown in July, and the plants are put out in September or early in October. Succession crops are sown in spring as soon as the weather is favourable. If sown too soon, as is sometimes done, the young leaves get injured by frosts, especially if these occur immediately after a period of mild weather.

The Enfield Market Cabbage is that which is principally used in the market gardens about London. It is one of the oldest in cultivation, and one of the best, and for this reason the growers generally save their own seed, and take great care that their plants of it are not crossed with other sorts. The newer variety, *Early Paris Market Cabbage*, could easily take the place of the Enfield Market Cabbage, and with advantage for all purposes. The sowing for the principle crop of these Cabbages is generally made about the end of July and up to the middle of August, on poor ground if possible, as in that case the plants come up stocky and hardy, and stand the winter well; whereas, if made on rich ground, a soft rank growth is produced, which is much more easily injured. This sowing

* See also p. 760.

is, as a rule, made in 4 ft. wide beds —a width found to be convenient for weeding and hoeing amongst the plants. When sufficiently strong to be transplanted, they are planted on ground cleared of Onions or Potatoes, and a second batch is planted on land cleared of Celery, French Beans, or Vegetable Marrows. Every empty space, under fruit trees or elsewhere, is planted with Cabbages. In planting, the ground is lined off into rows, 30 in. apart, and in these the plants are put 15 in. asunder. Between every two rows first planted another is then put in with less care, thus making the plants stand 15 in. apart each way. Early in spring the alternate lines of plants, and also every other plant in the lines or rows left, are lifted and sold as Coleworts. This allows the permanent crop plenty of room to come to maturity. With a view to subsequent plantations, which are made all through the winter wherever ground is vacant, the young plants in seed-beds are removed and pricked out into others a little farther apart, in order to keep them in good condition for planting out as long as possible. In this way, indeed, many of the plants are kept till spring, when they are transplanted to succeed those placed out in autumn. They will thus come in before the produce of the spring sowings, made late in February or early in March, to furnish Cabbages from June to August. The plants from this sowing are put out in rows 2 or $2\frac{1}{2}$ ft. apart, and in the intervening spaces are put lines of Lettuces, a plant of which is also set between every Cabbage in the row In May men may be often noticed busily engaged in tying up early Cabbages in the market gardens at Fulham and elsewhere. The operation is simple—just, in fact, that adopted in the case of Cos Lettuces. The succulent outer leaves are folded carefully around the heart or centre of the plant, and the whole is bound firmly with a withy or a piece of bast. There are several good reasons for this practice. The centre being protected from the weather, the Cabbages heart sooner than they otherwise would do, and they are more easily handled in gathering and packing for market. Early Cabbages, the leaves of which are so brittle, would lose half their value if some precaution of this kind were not taken to keep them from being broken by loading and unloading them.

Red Cabbages are sown in March, but the produce of the July sowing is generally considered better than that of spring. The plants are put out in rows from $3\frac{1}{2}$ to 4 ft. apart, and the plants stand about 3 ft. asunder in the rows. As this crop stands until the heads are large and solid, a piece of rich land is devoted to it, and intercropped with Potatoes, ordinary Cabbages, Lettuces, French Beans, or other vegetables of that kind.

The different sections of Cabbages differ perceptibly from one another in the size of the seed, the Borecoles and Kohl-Rabi producing the largest seed; next to these, the ordinary Round-headed varieties and the Turnip-rooted Cabbage or Swedish Turnip; and, lastly, the Cauliflowers and Broccolis, which have the smallest seed of all.

USES.—The leaves of the common headed varieties and of the

Borecoles are cooked in various ways, or used in salads, as in America, or fermented so as to form what is termed Sauer-kraut. The heads of the Cauliflowers and Broccolis, the stems of the Kohl-Rabi, the roots of the Turnip-rooted and the Swedish Turnip, and the small heads which grow along the stems of the Brussels Sprouts are most usually eaten boiled, although they are also well treated in other ways by foreign cooks. The very commonness and cheapness of Cabbages leads to the ignoring of their existence on the part of many superior persons. It is a great mistake, as they are by far the most precious vegetables we have, eaten young, in the right season, and well cooked. Though forms of the same wild plant, the variety of flavours is remarkable. It is not more remarkable, however, than the way the common cook usually spoils this vegetable. In the hotels and restaurants it is usually an unappetising mess, heavily charged with soda. The best cookery of Cabbages may frequently be observed among cottagers and servants brought up in country cottages. One result of the neglect of Cabbage on the part of the affluent is that they miss some of the most delicate and wholesome vegetables we have, in various little-known forms of this family, which will be described farther on in this book. This vegetable in its wondrous variety is better fitted for our country than for any other, and comes to greatest perfection in it. To despise it and neglect it is a mistake and a loss. Those possessing good gardens would do well to grow and use the more delicately flavoured forms and those best suited to their localities, and thus lead the poor to a fuller knowledge of things so easy for all to grow, and which yield so abundantly. Under the best conditions, not a few of them are as good as any vegetable that is grown, and, if rare, they would be sought as delicacies.

This question of cooking is undoubtedly of paramount importance, and must necessarily have an immense influence upon the use of many otherwise excellent vegetables, of which Cabbage is a typical example. It may, therefore, not be out of place here to give a few indications as to the way Cabbage is usually cooked and used in France. 1st. As a soup (*soupe aux choux*).—The head of a Cabbage or of a Savoy is freed of its outer leaves, cut in two or four, washed and placed in cold salted water on the fire, adding a few Carrots, Turnips, Potatoes, and a fair-sized piece of bacon or ham. Let boil slowly at least three hours. 2nd. As a vegetable.—The head is cut into small pieces, washed, put in boiling salted water on the fire, and cooked for half an hour, then placed in a strainer. Cook sausages or lean bacon cut in small pieces, and when done add to the Cabbage, and let all slowly simmer together until the time for serving. 3rd. As a garnishing.—Take only the white heart of some Cabbages, cook for half an hour as above, strain, mince and place in a stewpan with butter and a little broth, and let simmer slowly until time for serving. *

* Cabbages Clubbing, see p. 776.

THE COMMON CABBAGE

Brassica oleracea capitata, D.C.

French, Chou cabus, C. pommé. *German*, Kopfkohl, Kraut. *Flemish*, Kabuiscool. *Dutch*, Slutkool. *Danish*, Hoved kaal. *Italian*, Cavolo cappuccio. *Spanish*, Col repollo. *Portuguese*, Couve repolho.

This section is usually divided into two classes—viz. the Smooth-leaved and the Curled-leaved or Milan (Savoy) kinds. In describing the varieties of both classes, we shall do so, as far as possible, in the order of their respective degrees of earliness, at the same time duly noting the affinities of the different kinds.

Early York Cabbage.—We commence our descriptions of Cabbages with this variety, because, although it is not the earliest of all, it is one of the best known and most generally cultivated of early kinds, and it will be easier to characterise the analogous varieties by comparing them with it. The head is an oval or

Early Dwarf York Cabbage.

Large York Cabbage ($\frac{1}{12}$ natural size).

reversed-cone shape, oblong, nearly twice as long as broad, small, and fairly compact. Leaves dark green, with a slight bluish, glaucous, or gray tinge on the under-side, the outer ones of those which form the head covering the others like a hood; those on the very outside, which do not help to form the head, are few in number, and bent back in the contrary direction, often having the edges turned towards the midrib on the back, and very smooth; veins rather broad, of a greenish white; stem slender, and about the same length as the head.

The *Superfine Early* is a sub-variety of the Early York, from which it hardly differs in appearance, with the exception of being dwarfer and about a week earlier.

Large York Cabbage.—Larger in all its parts than the preceding kind, this variety has the head thicker and stouter in proportion to its length, the transverse diameter being about two-thirds of the length. The outer leaves are stiffer, firmer, and

broader, and usually not so bluish in tint; the stem also is shorter in proportion. This is an excellent early kind, very productive, and of good quality. The only fault, perhaps, which it has is that it takes up rather too much ground for the size of the head, in consequence of the large outside leaves spreading so much in the horizontal direction.

Sugar-loaf Cabbage.—Head very long like a reversed sugar-loaf in shape, regularly oblong, and at least twice as long as broad, very like a Cos Lettuce in form, whence its French name of *Chou Chicon*; leaves pale or light green on the upper surface and whitish green underneath, long spoon-shape, and covering each other in a remarkable manner with their hood-shaped tops to form the head; outer leaves erect, like those of a Cos Lettuce; stem comparatively short, being not more than a third or half the length of the head. This variety is very distinct and productive, and is almost as early

Sugar-loaf Cabbage
($\frac{1}{12}$ natural size).

Early Ox-heart Cabbage
($\frac{1}{12}$ natural size).

as the preceding kind. Like the two foregoing kinds, it answers as well for sowing in autumn as in spring, and, growing tall and slender, it does not occupy much ground relatively to the size of its head. It is also slow in running to seed—a good quality for which it deserves to be specially mentioned. It is somewhat singular that, although a very old variety and well known in every country in Europe, it does not appear to be extensively grown anywhere.

Early Ox-heart Cabbage.—The shape of the head of this variety is well expressed by its name, and is that of a short, thick-set, blunt-pointed cone, the length of which does not exceed the breadth by more than one-fourth or one-fifth. The outer leaves are broad and nearly round, and less glaucous than those of the York Cabbages; those which form the head are rather wrapped round each other than hood-shaped. The stem is rather short, being shorter than the head, which begins to form very early, and

is fit to cut about the same time as the Early York. The Ox-heart Cabbage may be considered the type of a rather numerous class, to which the following varieties belong :—

Express Cabbage.—An early, short-stemmed variety, which begins to head with the fifth or sixth leaf. An Étampes Cabbage

Express Extra Early Cabbage.

Early Étampes Cabbage.

on a reduced scale, it has the chief characteristics of that variety with greater earliness. Like the Early Ox-heart and the Early York Cabbage, it may be planted very close.*

Early Étampes Cabbage.—From several comparative trials which we have made, this variety seems to be, after the preceding one, the earliest of all the headed Cabbages. In most points it resembles the Early Ox-heart, but it has a longer and more conical head, and is also a somewhat bulkier plant. It was raised by M. Bonnemain, Secretary of the Étampes Horticultural Society, and is well adapted for spring culture.

Jersey Wakefield Cabbage.

Jersey Wakefield Cabbage.—This variety is well distinguished from the other forms of Ox-heart Cabbages by the yellow tint and very stiff texture of its leaves, and it has a longer stalk than any of the Ox-heart Cabbages properly so called. The outer leaves

* Enfield Market, see p. 761. New Varieties, see p. 762.

are pale glaucous green, rounded in shape, very faintly undulated at the edges, and remarkably firm and stiff; those which immediately surround the head are often hollowed like a spoon. The head itself, a very pale green, is short, blunt, and conical, and often tinged with red on the side exposed to the sun. This is an early and productive variety, and the head keeps firm for a considerable length of time—an important advantage when it is grown as a field crop.

Early Paris Market Cabbage (*Chou Cœur-de-bœuf Moyen*).—An early variety; raised by the Paris market gardeners. The head is not quite so high as that of the Étampes Cabbage, but is rounder and broader at the base. The head develops very rapidly as soon as it has begun to form, yielding the heaviest crop in the shortest time. An excellent substitute for the Enfield Market Cabbage, to which it is altogether superior.

Early Paris Market Cabbage.

Prince's Nonpareil Cabbage.

The *Chou Préfin de Boulogne* is a sub-variety of the Ox-heart, remarkable for its earliness, and easily distinguished by its light colour and the broadness of the ribs, which spread like a fan over the whole width of the leaf. The *Early Louviers Cabbage*, another sub-variety of the Ox-heart, very much resembles the Étampes Cabbage, but it is not so early, and has a somewhat shorter head. The *Chou Prompt de Saint-Malo*, which is a little larger, and has broader leaves and a rather shorter and broader head than the foregoing kinds, has, like them, been advantageously superseded by the Very Early Étampes variety.

Prince's Nonpareil or **Barnes' Early Dwarf Cabbage.**—Intermediate between the Ox-heart and the Tourlaville varieties comes one which is very extensively grown in England under the name of "Nonpareil." This is an early kind, with a rather long but blunt conical head, and leaves dark green on the upper surface, and very coarsely crimped. It differs from the Tourlaville variety in not having the leaf-stalk bare at the base, nor the leaves so much

twisted in shape. It is a good early variety, requiring about the same time to come to perfection as the Large York.

The variety named *Enfield Market*, of which the Nonpareil appears to be a good sub-variety, is not quite so early, and may be ranked among the Ox-heart varieties.

Tourlaville Early Cabbage.—The head of this variety is rather long and pointed, and is formed by the leaves being wrapped upon each other in such a manner that some of them contribute only their lower part to its formation, while they stand clear of it in the upper part. Leaves large and broad, very dark green, and with ribs very thick and round near the stem, curving abruptly so as to press the leaves close to the head. This is a very distinct, early,

Tourlaville Early Cabbage ($\frac{1}{12}$ natural size).

Large Ox-heart Cabbage.

and vigorous variety, and is sent to Paris in large quantities at the close of the winter from the neighbourhood of Cherbourg, where it is extensively grown. When cultivated outside of its native district, it does not appear to possess any marked superiority over the ordinary Ox-heart kinds, and, besides, it is rather variable in its leaves, which are sometimes smooth and sometimes crimped.

Large Ox-heart Cabbage.—A vigorous and productive kind, heading very soon, coming in a fortnight or three weeks later than the Early Ox-heart, but growing three or four times the size of that variety. Outer leaves large, rounded, rather thick, and darker in colour above than underneath ; head large, very obtusely conical, and somewhat gray-green ; stem rather short, seldom more than two-thirds of the length of the head. This is a good variety for market-garden culture on a large scale—approaching field culture. It is hardy enough to require but little attention when growing, and when the heads are formed they maintain their compactness longer than the early varieties without bursting or losing shape too speedily.

Lingreville Cabbage.—Stem rather short; leaves large, pale, almost light green, moderately undulated and crimped, soon forming a head of an oblong and almost pointed shape, by twisting themselves over one another rather than taking the ordinary hood or cap form. In appearance and size, this variety is almost intermediate between the Tourlaville and the Early Bacalan varieties, and, as in those two kinds, the formation of the head is commenced by leaves which are at some distance from each other on the stem. In the axils of these lower leaves, shoots sometimes grow which form small heads themselves about as large as an apple or an orange. The variety which produces these secondary heads is known in Normandy by the name of *Chou Grappé* or *Chou Grappu*.

Early Bacalan Cabbage.—Head oblong, conical, thick, and rather compact, resembling that of the Ox-heart variety, but

Lingreville Cabbage.

Early Bacalan Cabbage ($\frac{1}{12}$ natural size).

perceptibly longer; leaves large, very slightly crimped, and undulated on the edges; stem longish. Although larger than the Ox-heart variety, this is equally early, and especially adapted for the mild seaside climate of the west of France. It appears to have been raised at Saint-Brieuc, whence it was brought to Bordeaux, and is very largely grown and highly esteemed in both these localities, especially for autumn sowing.

Large Bacalan Cabbage.—When this variety comes true to name, it is distinguished from the preceding one by its somewhat larger size and by its more compact and rather more pointed head. There are all kinds of intermediate forms between these two varieties, which were themselves identical in origin. The Large Bacalan heads almost as soon as the preceding kind and keeps its shape better.

Here ends the series of varieties which may be considered as forming one group with the Ox-heart kinds. We shall add to the

list of Early Cabbages three round or flat-headed varieties, which by their earliness and smallness of size are clearly distinguished from the kinds commonly known as Large Smooth-leaved Cabbages, the series of which commences with the description of the Saint-Denis Cabbage.

Large Bacalan Cabbage ($\frac{1}{12}$ natural size).

St. John's Day Dwarf Drumhead Cabbage ($\frac{1}{12}$ natural size).

St. John's Day Dwarf Drumhead Cabbage.—A very distinct variety, with an extremely short stem. Head very hard and compact, rather broad than long, and somewhat bulging in the upper part; outer leaves not very numerous, deep green, and very smooth; those forming the head of a paler green. This variety is very extensively grown in Anjou and Lower Brittany. In the neighbourhood of Paris it does not easily withstand a very cold and damp winter. In its native district it is chiefly sown in autumn for a spring crop; grown in this way, the heads are not so flat as they turn out when the sowing is made in spring,

Flat Parisian or **Early Spring Cabbage.**—A very short-stemmed variety with a broad, flat, slightly rounded head. It has but few outer leaves, and its colour is a light vivid green. A very early cabbage,

Flat Parisian Cabbage.

Small Early Erfurt Cabbage ($\frac{1}{12}$ natural size).

admirably suited for market-gardens, and usually grown around Paris along with the second-early varieties of the Ox-heart type.

Small Early Erfurt Cabbage.—A very handsome little variety, an almost exact miniature of the Hundredweight Drumhead Cabbage. Stem short; head flattened; outer leaves marked with a great number of white veins. It does best when sown in spring, as autumn-sown plants are apt to run to seed without heading.

Henderson's Early Summer Cabbage.—This variety, which is of American origin and rather esteemed in the United States, cannot be more properly placed than next after the preceding kind, which it much resembles in size and appearance. It has, however, a longer stalk, a thicker head, and leaves of a grayer tint. In earliness, it comes immediately after the Jersey Wakefield Cabbage, and before all the other large-headed Cabbages.

CULTURE.—The Early Cabbages, among which may be classed all the varieties which have just been enumerated (except, perhaps, the Large Bacalan Cabbage), are usually sown about Paris during the last ten days of August, or the first ten days of September. In October, the seedlings are either planted out permanently, or else pricked out into a bed, where they are allowed to remain until they are planted out permanently in spring. In well-drained, warm, light soils, they may be generally planted out permanently at the end of autumn; but in damp soils, or in localities which are exposed to severe frosts and snow or excessive rains, it is better not to plant out permanently until after winter is over. The earliest York Cabbages should be planted in warm and sheltered positions in a bed with a south aspect. In February, it is a good plan to make a sowing of early kinds on a hot-bed, pricking out the seedlings on a hot-bed also, and using the plants thus obtained to fill up vacancies caused by any of the autumn-sown plants having either perished from the severity of the winter or run to seed prematurely under the influence of unusually mild weather. Early Cabbages may also be sown in spring, from March to May, and planted out as soon as the seedlings are big enough, if there is ground ready to receive them. This is the simplest and easiest way of growing them, but it is not so much practised as sowing in autumn, as these early varieties are mostly grown for spring crops.

SMOOTH-LEAVED DRUMHEAD CABBAGES

Saint-Denis Drumhead Cabbage.—This variety, which is one of the most extensively grown about Paris, and also one of the oldest, may very aptly be placed first on the list in the enumeration of the different varieties of Smooth-leaved Drumhead Cabbages, as

its well-known characteristics will serve as points of comparison to which we shall refer other varieties of foreign origin or more recent introduction. It has a longish stem, quite as long, at least, as the head, which is round, depressed, and almost flat when fully grown, and of a wine-lees-red colour on the top. Outer leaves large, rather stiff, the lower part closely pressed against the head, and the upper part turned backwards, rather deep and glaucous green, and rounded in outline, entire, not toothed nor undulated; veins rather large, and pale green. In the neighbourhood of Paris it is usually sown from March to May, and the heads are cut in the autumn up to the commencement of winter.

A sub-variety of the Saint-Denis, which is a little earlier, was for a long time grown under the name of *Chou de Bonneuil*, but it has now either gone out of cultivation or become mixed up with the ordinary variety. And yet, if we refer to the descriptions of

Saint-Denis Drumhead Cabbage ($\frac{1}{12}$ natural size).

Late St. John's Day Cabbage ($\frac{1}{12}$ natural size).

the two kinds which were published over a century ago, it would appear as if it was really the old Saint-Denis variety which has gradually disappeared and been superseded by the *Chou de Bonneuil*. The characteristics of the latter, as described in the eighteenth century, were, in fact, the same as those which we recognise at the present day in the Saint-Denis Cabbage, while the variety which was then named Saint-Denis had a fuller and less flattened head and a longer stem, and resembled the Late Flat Dutch Cabbage up to a certain point.

Late St. John's Day Cabbage (*Chou Joanet tardif*).—Stem shorter than that of the preceding kind; head rounder and not so broad; outer leaves smaller, rounder, and a deeper green. The plant does not take up so much ground as the Saint-Denis, and comes in some days earlier, but it does not appear to bear frost so well. The stem is so short that the head seems almost to rest on the ground.

Early Dutch Drumhead, or **Early Dwarf Flat Dutch Cabbage.**—A short-stemmed variety very like the Large St. John's Day Cabbage. It is not quite so early as that, and is also sometimes brown on top. Both varieties are well suited for market-garden culture, their heads being close and firm.

Short-stemmed Brunswick Cabbage.—An excellent kind, very distinct, and highly deserving of recommendation. Leaves and head

Early Dutch Drumhead Cabbage ($\frac{1}{12}$ natural size).

Short-stemmed Brunswick Cabbage ($\frac{1}{12}$ natural size).

a fine clear green, far less glaucous than those of the Saint-Denis, and with less of the gray tinge than those of the Hundredweight Drumhead ; head thick and broad, very much depressed, and quite flattened on the top ; outer leaves growing closely against the under-part and sides of the head, which, from the shortness of the stem, appears to be almost resting on the ground. The plant is almost as early as the Saint-Denis Cabbage.

The Large Late Flat Brunswick Cabbage, which has a longer stem and a less flattened head, has not been much grown since the present kind, which is superior to it in every respect, became more generally known.

Schweinfurt Quintal Drumhead Cabbage.

Schweinfurt Quintal Drumhead Cabbage.—This is the largest, if not the most productive, of all the Cabbages, and is, at the same time, a very early kind. When sown in April, it may be cut at the end of August or in September. The head is remarkably broad, frequently attaining a diameter of 20 in. and more ; it is, like the outer leaves, a pale green, crossed with white veins, and often tinged with brown or violet-red, rather soft and deficient

in compactness and weight; nevertheless, a good kind for the kitchen-gardens of farms or large establishments, on account of its productiveness and earliness.

Fumel Cabbage.—This kind, and also the two following varieties, might be considered as intermediate between the Smooth-leaved Cabbages and the Savoy Cabbages, as the leaves are coarsely crimped and almost curled. We shall, however, follow the usual custom in classing them with the Smooth-leaved kinds, and they cannot be more properly placed than next to the Schweinfurt Cabbage, which they resemble in their earliness and in the softness of the head. The Fumel Cabbage appears to have originated in the south of France; at least, it is very much grown there, and also in Algeria. It has a very short stem, and not many outside leaves, which spread horizontally close to the ground, are of a dark green colour, and broadly crimped. The head, on the other hand, is very light in colour, loose, broad, and very much flattened; it is almost as large as that of the Saint-Denis Cabbage, but not nearly so heavy, and goes out of shape very soon. This is one of the earliest of all the Cabbages, but it does not appear to answer the climate of northern districts, where it rots too easily.

Fumel Cabbage.

Early Habas Cabbage.—A variety grown in all the south-western districts of France, where it is sometimes confounded with the following kind. It is a pretty early Cabbage, with a short stem, and numerous crimped leaves, rather light in colour, the lower ones almost spreading on the ground, the inner leaves form a rather loose head of a yellowish green colour.

Early Habas Cabbage ($\frac{1}{12}$ natural size).

Dax Drumhead Cabbage.—Stem pretty long; leaves very numerous, coarsely crimped, of a darker and more glaucous green than those of the preceding kind, and resembling those of the Large Drumhead Savoy to some extent; head round, seldom well formed, at least in the climate of Paris, and always rather

small in comparison with the luxuriance of the leaves. A half-late variety, which appears to be of little account outside of its native locality.

Dax Drumhead Cabbage ($\frac{1}{12}$ natural size).

Late Flat Dutch Drumhead Cabbage.—Head rather large, round, somewhat depressed in shape, very full and firm; outer leaves pretty numerous, large, and clinging, broadly crimped to some extent. This variety has a longer stem and is more glaucous and later than the Saint-Denis Cabbage. Its principal merit is that of being exceedingly hardy and capable of enduring the most severe frost. The *Ecury* Cabbage, which is well known and highly esteemed in Champagne, resembles it very much.

Late Flat Dutch Drumhead Cabbage ($\frac{1}{12}$ natural size).

Hundredweight, Quintal, or Mason's Drumhead Cabbage.—One of the oldest and best Late Cabbages. Head broad, very large, very much flattened, and very firm; leaves a pale glaucous or ashy green, with very numerous white veins, and the edges often cut or toothed; outer leaves rather numerous, but not growing to a very great size, turned back at the tops and showing the head well. A late, very hardy, and very productive kind, and is one of the sorts which are most used for making *Sauer-Kraut*. Probably no other variety of Cabbage is so extensively employed for field culture. The *Melsbach* Cabbage appears to be a somewhat earlier sub-variety of this.

Hundredweight, or Quintal, Cabbage.

Auvergne Quintal Cabbage.—A variety derived from the preceding one, but much larger and slower to develop. The stalk is very short; the outer leaves are erect and gray-green glazed, with broad ribs. The leaves are only slightly crimped, but much undulated at the edges. The head, which is rather flat and very hard, is often over 1½ ft. in diameter. A hardy and very productive variety, fit for autumn and winter use on farms and in large gardens. Although of rather recent introduction, it has already spread all over the country.

Early Winnigstadt Cabbage.—In its pointed shape, this variety somewhat resembles the Ox-heart Cabbages, but differs from them very strikingly in the close and compact manner in which the leaves forming the head are wrapped round each other, and the consequent greater hardness and firmness of the head. Stem short; outer leaves large, glaucous green, and moderately

Early Winnigstadt Cabbage.

Filder, or Pomeranian, Cabbage ($\frac{1}{12}$ natural size).

undulated at the edges; the inner ones are folded almost in the shape of a twisted or conical paper bag, and form an exceedingly solid and firm head, almost spherical in shape, but pointed at the top, and weighing heavy for its size. Although only a middling early kind, it is an exceedingly productive one, and cannot be too highly spoken of. It is also one of the best for field culture. It succeeds much better in summer than in the autumn, and is unsuited for late sowings and spring use.

Filder, or Pomeranian, Cabbage.—Stem long, usually swollen under the head; outer leaves numerous and large, light green; head a very long cone-shape, solid and compact, and very white at the heart, ending in a point formed by a leaf rolled in the shape of an inverted paper bag. This is a rather late variety, succeeding better when sown in spring than when sown in autumn, and keeping well for some time in winter. It is very generally grown in the

north of Germany, where there are a great number of local varieties, differing more or less from one another in the length of the stem and head, and the colour of the leaves. This variety appears to us to be the most deserving of notice, as it is productive without being very late.

Green Glazed American Cabbage ($\frac{1}{12}$ natural size).

Green Glazed American Cabbage.—An exceedingly distinct variety. Stem of medium length; leaves rounded, very firm and stiff, dark green, and glazed all over. This kind does not head very well, but in some degree resembles the Borecoles, differing from them in fulness of leaf and shortness of stem. It is most suitable for spring culture, and is often sent to table shredded in vinegar like Red Cabbage.

Curled-leaved Winter Cabbage (*Chou gaufré d'hiver*).—A compact variety, the outer leaves curiously curled at the edges and closely set against the head, which is round, hard, and plump, and impervious to the hardest winters. It is not unlike the Vaugirard Winter Cabbage, but is untinged with violet either on the head or on the leaves. It is almost as much grown as the Vaugirard for supplying the markets at the end of the winter.

Curled-leaved Winter Cabbage.

Vaugirard Cabbage.—Stem rather short; outer leaves numerous, stiff, of rather dark gray-green, often hollowed or spoon-shaped, and always undulated and cut at the edges; veins numerous and distinctly marked; head round, depressed, rather flat, firm and hard, tinged with violet-red on the upper part, and also at the edges of the outer leaves. This is one of the hardiest kinds, and is very much grown in the neighbourhood of Paris for winter use; it bears frost, however, better when the

head is not fully formed. The Parisian cultivators are careful not to sow it too early, seldom doing so before June, if it is intended to pass the winter in the open ground.

Extra Late Amager Cabbage.—Stem tall, leaves of a peculiar silvery gray colour, smooth, rounded, slightly convoluted at the edges. Head round, only slightly flattened, weighing from 4 to 6 lb. It is late to form, but very hard. Introduced from Denmark, where it stands the severest winters without any protection, it is the hardiest of all headed Cabbages.

Early Dark Red Erfurt Cabbage.—A very handsome, small, dwarf kind, with a spherical head not much larger than a big

Vaugirard Cabbage ($\frac{1}{12}$ natural size).

Early Dark Red Erfurt Cabbage ($\frac{1}{12}$ natural size).

orange. Leaves round, not very numerous, dark red, almost black. The heart of the head, however, is not so dark. A very handsome little Cabbage for the kitchen-garden, taking up little space, and coming in early. The stem is short but well defined, as the outer leaves stand up well around the head, as in the Late St. John's Day Cabbage. This variety does not do well, unless when sown in spring—at least, in the neighbourhood of Paris.

Utrecht Red Cabbage.—Stem rather long; head round, compact, and dark red; outer leaves rather numerous, of medium size, round, and rather stiff; the heart of the head is not very deeply coloured.

Utrecht Red Cabbage.

Large Red Dutch Pickling Cabbage, or **Large Red Drumhead Cabbage.**—Stem rather long; outer leaves very large, broadly undulated at the edges, violet-red, sometimes slightly mixed with green, and covered abundantly with bloom, which gives them a blue tinge; head rather large, rounded in shape, slightly depressed, not so deeply coloured on the outside as that

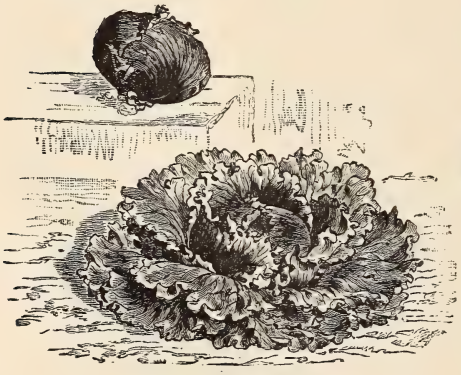
of the two preceding varieties, but much more deeply coloured at the heart. This variety is more productive than the Utrecht, and is only a few days later. It is the best kind for field culture.

Large Red Dutch Pickling Cabbage.

The American *Mammoth Rock Red Cabbage* and *Acme Red Drumhead Cabbage* resemble much the Large Red Dutch Pickling Cabbage, but with them the heart is a little more solid.

Red Polish Short-stem Cabbage.—A very distinct variety. The head is flat, dark red, hard and compact. The outer leaves are covered with a waxy coating which gives them a bluish look. They are undulated at the margin, and stiff like those of Quintal Cabbage. The stem is very short. It is a variety for autumn and winter use, and being extremely hardy, may be left very late on the ground.

Dark Red Early Pointed-headed Cabbage.—A vigorous grower, with a fairly long stem, large and numerous leaves,



Red Polish Cabbage.

Dark Red Early Pointed-headed Cabbage.

dark red in colour, and a firm and fairly large head, oval in shape and pointed at the top.

All the kinds of Red Cabbage are used in the same ways as the other kinds, but they can also be eaten raw, as salad;

when shredded fine and pickled with vinegar, they turn a brilliant red colour.

Marbled Burgundy Drumhead Cabbage.—Stem longish; leaves numerous, stiff, rounded, narrowly undulated at the edges, pale gray-green, with red ribs and veins; head rather small, very compact, flat on the top, formed of short leaves, which often do not quite cover one another, and leave a pit-like depression in the centre of the top. In addition to the principal head, other small heads, about the size of hen's eggs, and very hard and compact, are often produced in the axils of the lower outside leaves. It is chiefly from the marbled appearance of the heart of the head when cut that this variety derives its name. It is considered a very hardy kind, and is very extensively grown in the eastern districts of France and in Switzerland.

Marbled Burgundy Drumhead Cabbage.

Variegated-heading Cabbage. — A short-stemmed variety, with outer leaves half-erect, undulated, strongly tinged, and mottled with white, rose, red, and lilac on a dark green ground, which makes it of some value as an ornamental plant. The head, however, is large enough to make it worth growing for the table.

Variegated-heading Cabbage.

CULTURE. — The Smooth-leaved Drumhead Cabbages, the series of which terminates here, are most usually sown in spring, from March to June, according to the varieties grown, and the time it is desired the crop should come in. The sowings are made in the open ground, and the seedlings are pricked out as soon as possible into a bed, from which, as soon as the stems have grown as thick as a goose-quill, they are planted out permanently in well-tilled and richly manured ground. Plentiful waterings should be given, at first to ensure the rooting of the young plants, and afterwards to compensate for the great evaporation which takes place in

the long hot days of summer. Over a great part of Britain this is not needed. The kinds which are cut in autumn do not require any special treatment. Those which are for winter use should not be allowed to remain where they were planted, except in localities where the winter climate is mild; everywhere else, they should be taken up and trimmed of all decaying and superfluous leaves, and then replanted closely in rows, in an inclined position, with the top of the head, if possible, turned towards the north. In some countries a curious, but very effectual, method is adopted: a sort of a wall is constructed of soil, in which the stems and roots of the Cabbages are placed horizontally, the heads remaining outside. In this way, they will keep very far into the winter. Very few of the common large Cabbages are suited for being sown in August for use in the spring or early summer, as most of them run to seed without forming a head when grown under those conditions. It is advisable, therefore, to treat such Cabbages as biennials only in places where this has been tried with success.

Besides the varieties already described, we may mention the following kinds, which were formerly more or less esteemed, and the names of which are still to be met with in horticultural works, although the plants themselves are not now so often in cultivation; also a few local varieties, which at present are hardly distributed beyond their native districts:—

Alsace Autumn Cabbage.—Stem long; head large, compact, flat, and sometimes brown on the upper part; outer leaves short, stiff, and round. This variety resembles the Saint-Denis Cabbage, but it has a longer stem, and comes in somewhat earlier.

Large La Trappe, or **Mortagne, Cabbage.**—This handsome kind is hardly grown beyond the neighbourhood of Mortagne, in the department of l'Orne. It is somewhat like the Saint-Denis Cabbage, but is later, much larger, and of a deeper green colour.

Death's-head Cabbage.—A very thick-set, dwarf variety. Head of average size, very compact, regular, light in colour, and almost spherical; outer leaves rounded and not large. A very distinct variety, but now almost universally superseded by the Late St. John's Day Cabbage.

In enumerating the principal local varieties grown in England, other parts of Europe, and the United States, we may observe that it is rather remarkable that, while a great number of the varieties of other vegetables are almost exactly the same in France and England, most of the varieties of Garden Cabbages are quite different in the two countries. This is probably owing to the difference of climate, as the Cabbage is highly susceptible to the effects of a dry or a moist climate. We shall only mention those English varieties which are most generally grown, noting, where possible, the French varieties they most closely resemble.

Atkin's Matchless Cabbage.—This variety is very like the Very Early Etampes Cabbage, but it is not so early, and its leaves are more undulated.

Battersea, Enfield Market, Vanack, or **Fulham Cabbage.**—One of the most extensively grown for the London markets. It resembles the French Large Ox-heart Cabbage, with a tendency in the direction of the Tourlaville or the Bacalan variety. The Early Paris Market Cabbage is a very good substitute for this variety.

Little Pixie, or **Tom Thumb,** is a good variety with very smooth, round, entire leaves, and oval obtuse heads.

Cornish Paignton, or **Early Cornish, Cabbage.**—Resembles the Bacalan Cabbage, but the head is less compact, and is extremely light in colour, like that of the Fumel Cabbage. It is not very hardy.

To the foregoing may be added—*Ellam's Dwarf Cabbage*, a very early variety, with small compact heads, of delicate flavour, a continuous supply of which may be had throughout the year by making successional sowings. *Carter's Heartwell Cabbage*, a valuable medium-sized Cabbage, and one of the earliest, remarkable also for its compact uniform growth. This and the preceding are two of the best kinds in cultivation. *Cocoa-nut* (Wheeler), a very distinct, compact, valuable small Cabbage. *Imperial* (Wheeler), a very fine selection, the variety being one of the best for general use.

Of the varieties grown in the north of Europe, the following are the most noteworthy :—

Kaper-kohl Cabbage.—Another very hardy kind, with a round, slightly flattened head, deeply tinged with violet or brown on the upper part, as are also the rather undulated edges of the numerous outer leaves. It is something like the Vaugirard Cabbage.

Lübeck Cabbage.—A variety of medium size, with a compact, flattened head. The leaves are rather glaucous, resembling those of the Saint-Denis Cabbage in hue. A late and very hardy kind.

Giant Flat Gratscheff Cabbage.—A very leafy and large-sized variety, the chief merit of which, perhaps, is its capacity for enduring severe frosty weather without injury.

The varieties which have originated in the south of Europe are not very many. We shall only mention the following :—

Pisa Round Cabbage.—This Cabbage is extensively grown and much esteemed in Italy and Algeria. In size and appearance it is rather like the Late St. John's Day Cabbage ; the head is almost round, but terminates at the top in a blunt cone; stem rather long ; outer leaves not many, round, and almost spoon-shaped. There are several sub-varieties, differing from one another in size and earliness ; the earliest of them heads almost as quickly as the York Cabbages.

Murcian Cabbage.—An exceedingly distinct variety with leaves almost round, thick, dark green on the upper surface and nearly gray underneath, overlapping one another like the leaves of a Cabbage Lettuce. It is a very early variety, but the head is loose in texture and almost quite hollow, keeping its shape only for a few days. In the climate of Paris it is of no account.

In the United States the varieties of Cabbage grown there are divided generally into three groups :—

(1) Early Cabbages: comprising the Early Jersey Wakefield, Express, Very Early Étampes, St. John's Day Early, Early York, Flat Parisian or Early Spring (described earlier in this book), and the Charleston Wakefield Cabbage, which is a rather later, larger-headed, rounder, and broader-leaved variety than the Early Jersey Wakefield Cabbage.

(2) Summer or Second Season's Cabbages: comprising, in addition to the Early Dwarf Flat Dutch, the Winnigstadt Early, the Pointed-headed Pomeranian, the Large Brunswick Short-stem Cabbages, already described, the following principal American varieties :—

Henderson's Early Summer Cabbage.—A middle-sized, half-long-stemmed variety ; the heart flattened or slightly depressed at the top, and pale green ; the outer leaves large and displayed, rather thin and slightly undulating at the edges. Early, quick-heading, and much esteemed in the United States.

All-head, Faultless Early, Solid South, or **Eclipse Cabbage.**—Rather earlier than the last-described, and a stouter plant, with smoother, thicker leaves. The stem is rather short, the head rounded, big, hard, and regular in shape.

Succession Cabbage.—Resembles the Henderson's Early Summer Cabbage, excepting that the leaves are smaller, thicker, and the head much bigger and flatter, maturing also eight or ten days later.

All Seasons, or **Vandergaw, Cabbage.**—Rather later than the Succession Cabbage, and more spread out ; the head round and compact. It is something like the Brunswick Short-stemmed Cabbage, but leafier and more solid in the head.

Deep-head Cabbage.—Leafy, but a fine deep head, like the Brunswick Cabbage.

(3) The third group comprises the Late, or Winter, varieties, mostly derived from the Late Flat Dutch Cabbage. Among the varieties the most cultivated in the United States, besides that of the Extra Late Amager Cabbage (*syns.* the Danish Ball-head, the Dutch Winter, the German Export, Danish Emperor, and Solid Emperor) already described, are the following :—

Excelsior Late Flat Dutch Cabbage.—Differs from the Brunswick Short-stemmed Cabbage in having a bigger and sometimes red-coloured head. The leaves are glaucous.

Premium Late Flat Dutch Cabbage.—A tall-stemmed variety, rather quicker to head than the Late Flat Dutch Cabbage, the leaves large and glaucous; head big, flattened, full and solid, something like that of the Saint-Denis Large Cabbage.

Houseman Late Flat Dutch Cabbage.—A hardy, big variety, with large rounded entire leaves curling backwards, the head big, round, compact, and the stem rather long.

Acme Late Flat Dutch Cabbage.—Differs from Houseman's Late Flat Cabbage only in having the outer leaves of more ample size and thinner texture.

Select Late Flat Dutch Cabbage.—Mid-way, as regards characteristics, between the Houseman Late Flat Dutch Cabbage and the Acme Late Flat Dutch Cabbage.

Stonemason, or **Warren's Stonemason, Cabbage.**—A distinct short-stemmed variety, with comparatively few leaves, and these rounded, entire, ample, stout, not much undulating and very glaucous; the head big, almost round and compact.

Sure-head Cabbage.—A late variety of the Late Flat Dutch Cabbage type; rather long in stem, the head of average size, compact and regular; outer leaves not numerous, glaucous and waving.

Louisville Drumhead Cabbage.—A vigorous late variety, the leaves long and entire, smooth, spreading, and thin in texture; the head at times more deep than broad. It is much grown in the southern States, where it seems less susceptible to drought than most other varieties.

Premium Late Drumhead, or **Large Late Drumhead, Cabbage.**—A big-sized, very late variety, shorter in the stem than the Premium Late Flat Dutch Cabbage, with many leaves ample in size, spread out, dark green, mostly undulated and waving at the edges; the head very big, compact, rounded, and keeping well.

Autumn King, or **World Beater, Cabbage.**—A distinct very late variety, the leaves not many, thick, rounded, waving, very glaucous, and violet-coloured; stem short; head thick, very large, round and compact.

Bridgeport Drumhead Cabbage.—A sub-variety of the Late Drumhead Cabbage, very late, glaucous, with stout white ribs, and firm, round, compact head.

Marble-head Mammoth Cabbage.—One of the largest varieties grown, and of considerable weight. It is very late, rather long-stemmed, the head rather open, resembling that of the Hundred-weight Drumhead Cabbage. The leaves numerous, glaucous, and curling outwards, the ribbing very marked.

Luxembourg, or **Hard-heading, Cabbage.**—A very late, hardy, short-stemmed variety, with leaves glaucous and rounded, and head of middle size, firm, and coloured beneath with violet-red like the Vaugirard Winter Cabbage. Keeps long.

SAVOY CABBAGES

Brassica oleracea bullata, D.C.

French, Chou de Milan. *German*, Wirsing, Savoyerkohl, Börskohl. *Flemish* and *Dutch*, Savooikool. *Danish*, Savoy-kaal. *Italian*, Cavolo di Milano. *Spanish*, Col de Milan, C. risada. *Portuguese*, Saboia.

Under this name are grouped all the varieties of Cabbage which, instead of having the leaves smooth, have them crimped, or, as they are sometimes incorrectly termed, "curled," all over. This appearance, according to De Candolle, is owing to the circumstance that, in these varieties, the parenchyma, or spongy substance, of the leaf is developed more rapidly than the nerves or veins, and consequently becomes raised above their level, not finding room enough to grow flat in the space between them. The area of the surface of the leaves is increased by these numerous crimped divisions, and the head, being formed of all the leaves while they are still young, is more tender than in any of the Smooth-leaved kinds generally. The flavour is also considered milder and less musky. The mode of growing them does not differ from that already described for the ordinary kinds.

St. John's Savoy Cabbage.—This handsome variety might almost be described as an Ox-heart Savoy, as it forms a head

St. John's Savoy Cabbage ($\frac{1}{12}$ natural size).

Ulm, or Early Green Curled, Savoy Cabbage ($\frac{1}{12}$ natural size).

much in the same manner as the Ox-heart Cabbage, and almost as promptly. The stem is extremely short, and the leaves are a pale, wan green, and much but not finely crimped. The head forms very quickly, more so than in any other variety of Savoy. It does not keep its shape long, but bursts and grows out of form, if not cut in time—a remark which also applies to nearly all the very early Cabbages.

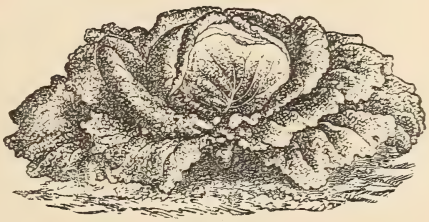
Ulm, or Early Green Curled, Savoy Cabbage.—Stem long; head small and round; leaves not numerous, deep green, rather coarsely and deeply crimped. This is the smallest and one of the earliest of all the Savoy Cabbages. The *New Dwarf Ulm* (*Little Pixie*) *Savoy*, a fine dwarf variety, the *Vienna Early Dwarf* (*Tom Thumb*, or *King Coffee*) *Savoy*, the dwarfest of all varieties, and

the *Dwarf Green Curled Savoy*, a fine medium-sized variety, are three kinds highly deserving recommendation. The first two kinds should be planted 1 ft. apart.

The Vienna Savoy is a sub-variety of the Ulm Savoy, with leaves not so much crimped, and a rather oblong head. A very small and very early kind.

Very Early Paris Savoy Cabbage.—This variety is closely allied to the preceding one, but also very distinct from it. Head round and firm, light green, and surrounded by a few spreading not very large leaves, rather dark green in colour, and more broadly crimped than those of the foregoing variety. The Very Early Paris Savoy is remarkable for its symmetrical and regular shape

Very Early Paris Savoy Cabbage ($\frac{1}{12}$ natural size).



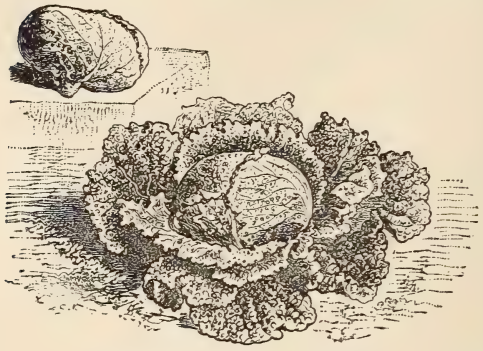
Dwarf Early Green Curled Savoy.

and dwarf stature. It heads almost as quickly as the York Cabbages or the earliest Ox-heart varieties.

Dwarf Early Green Curled Savoy Cabbage.—An excellent variety, very distinct, and of first-rate quality. Stem very short; leaves large and broad, rather deep green, very finely crimped, and spreading on the ground in a broad rosette before the head is formed; head firm, moderately flattened. This variety is extensively grown about Paris for the winter markets. It is sown all through the summer, planted out permanently just as winter commences, and supplies the markets all through the winter. Generally the head is only beginning to form when the plants are cut, but the numerous outer leaves, which closely surround the head, form an excellent vegetable after they have been softened and made tender by frosty weather.

Dwarf Roblet Savoy Cabbage.—A small and excellent variety, very dwarf and half-early. The outer leaves are glaucous green, short, and finely crimped, spreading on the ground. The head is flat and rather broad, and close to the ground. Its small size and the shortness of the outer leaves allow of its being grown very close; therefore a good cabbage for small gardens as well as a field variety.

Early Flat Green Curled Savoy Cabbage.—Stem rather long; leaves a somewhat glaucous green, largish and pliant, and not so finely crimped as those of the preceding kind. It somewhat resembles the Large Drumhead Savoy, but has a much smaller head. It is one of the most extensively cultivated kinds, and is chiefly worthy of note as being hardy, and not particular as to the soil in which it is grown.

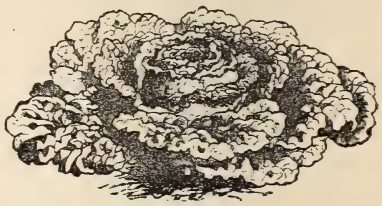


Dwarf Roblet Savoy Cabbage.

The American varieties are: Perfection Drumhead Savoy, Globe Curled Savoy, and the Improved American Savoy. There is very little difference between these and the Early Flat Green Curled Savoy Cabbage; and the same may be said of the Marvin's Savoy, another American variety, except that is a little larger and rather later.

Tours Savoy Cabbage.—Stem short; leaves very large and numerous, very dark green, and coarsely and broadly crimped, the outer ones almost entirely spreading on the ground; head round, rather small in proportion to the size of the plant, not very compact,

Early Flat Green Curled Savoy Cabbage.



Tours Savoy Cabbage ($\frac{1}{12}$ natural size).

and often imperfectly formed. As in the case of the Dwarf Green Curled Savoy, the outer leaves form as important a part of the crop as the head.

This variety resembles the *Early Joulin Savoy Cabbage*, but the latter is an earlier and smaller kind.

Aire Savoy Cabbage.—A very distinct short-stemmed variety; the outer leaves are not much developed, allowing of close plantation. Head almost round, medium-sized, firm, and very full, weighing 4 lb. and over when well grown. The leaves are pale

green or ash-gray, undulated in the centre, and finely crimped at the edges. An excellent Cabbage for autumn cultivation.

Victoria Savoy Cabbage.—Stem of average length; leaves rather numerous, light green, and very finely crimped, in which

Extra Fine Curled Aire Savoy.

Victoria Savoy Cabbage ($\frac{1}{12}$ natural size).

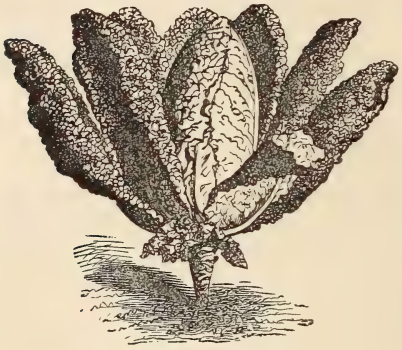
respect they are distinguished from those of all other Savoys except the following kind; head round, compact, fairly large, and light green. An excellent variety, of very good quality, and keeping its head well for winter use. Its leaves are remarkably tender and delicate in flavour, and yet they withstand frost and damp equally well. No other variety has the fleshy substance of the leaves so abundantly developed in proportion to the size of the veins or nerves.

Cape, or Large Late Green, Savoy Cabbage.—Stem longish; leaves finely crimped, fairly large, and glaucous green; head medium-sized, round, and very compact. This variety would bear no bad resemblance to the Victoria Savoy, only for the much deeper blue tint of its leaves.

Yellow Curled, or Golden, Savoy Cabbage.—Stem short; outer leaves broad, rather deep wan green, broadly crimped, and almost turned backwards; head of a long egg shape, medium-sized, not very compact, in winter turning to a very light colour, almost yellow. This Cabbage is very tender to eat, especially after frosty weather. There are several forms or sub-varieties of

Yellow Curled, or Golden Savoy ($\frac{1}{12}$ natural size).

it which exhibit various degrees of difference in size and earliness, while retaining all the main characteristics of the variety just described. One of the most highly esteemed of these is the *Blumenthaler*, a rather large and late kind.



Long-headed Savoy Cabbage ($\frac{1}{12}$ natural size).

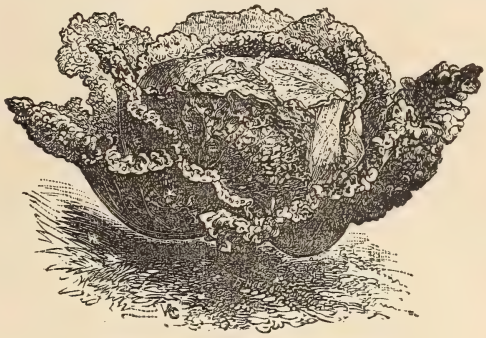
Long-headed Savoy Cabbage.—Stem of medium length, about one-half or two-thirds the length of the head, which is oblong in shape, almost like that of the Sugar-loaf Cabbage, light green in colour, and not very compact; outer leaves rather narrow, elongated, erect, rather broadly crimped, and somewhat glaucous green. A moderately early variety, of good quality, and yielding a fair crop, notwithstanding the smallish size of the plants. It heads well in the latter end of autumn, so that it can be sown to advantage rather late in the season.

Large Aubervilliers Savoy Cabbage.—A variety derived from the Vertus Savoy, but now distinct owing to a long selection. Years ago the Vertus Savoy came into the market scarcely before the end of October, until some market-gardeners, with a view to its profitable sale at an earlier date, were careful to mark for seeding purposes those plants which headed quickest, and hence the decidedly earlier strain which has been obtained. The new variety is not quite so hardy, nor does it keep so long as the Vertus Savoy, but it has a shorter stem, a more flattened head, and less glaucous light green leaves.

Large Aubervilliers Savoy Cabbage.

Large Vertus Drumhead Savoy Cabbage.—Stem 6 to 8 in. high, stout, bearing a broad, thick, compact head, which is flat on the top, sometimes tinged with a wine-lees-red, and almost perfectly smooth, being only partially crimped at the edges of the leaves; outer leaves rather numerous, large, broad, stiff, well spread out, rather dark

and glaucous green, and not so finely or abundantly crimped as those of most other Savoy Cabbages. This variety is grown on a large scale around Paris, and especially in the Plain of Aubervilliers, where they commence to cut it for market at the end of autumn and in the early part of winter. When it is grown true to name, the heads are only completely formed at that time, and they bear the early frosts pretty well. Immense quantities of this Cabbage are sent to the Central Market at Paris during a considerable part of the winter.



Large Drumhead Savoy Cabbage.

Large Hardy Winter Drumhead Savoy Cabbage ($\frac{1}{12}$ natural size).

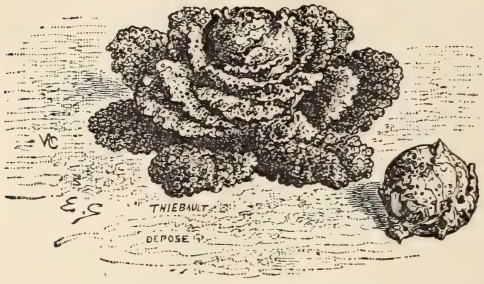
Large Hardy Winter Drumhead Savoy Cabbage.—Stem fairly long; leaves numerous, large, stiff, coarsely crimped, rather deep and glaucous green; head round, forming rather late, very full, compact and hard. This is a good winter variety, coming in after the preceding one. Some people consider it to be the original form of the Large Vertus Savoy, and that the latter is an accidental improvement of the market-gardeners on the primitive variety, which is not so early, and does not produce so fine a head.

Limay Savoy Cabbage ($\frac{1}{12}$ natural size).

Limay Savoy Cabbage.—Stem long; outer leaves large, spreading horizontally, and coarsely and densely crimped; head small, round, and not very compact. This variety is extremely hardy, and resists the severest frosts. Like the Dwarf Green Curled Savoy, it forms a large

rosette of leaves rather than a head, properly so called, and it is considered not inferior to that variety in the markets.

Small Belleville Savoy Cabbage.—Stem short, head firm and rounded, outer leaves dark and much crimped and spreading on the ground. It stands the frost well, a thin coating of snow sufficing for its protection. In this, and also in being quicker to head, it is much superior to the Limay Savoy, which it resembles. Like the Limay Savoy, it may be sown in June for use after the Vertus Savoy, from late in the autumn to the end of winter. It is largely grown for the Paris markets.



Small Belleville Savoy Cabbage.

Norwegian Savoy Cabbage.—This kind has the leaves so little crimped that it might almost be taken for an ordinary Smooth-leaved Cabbage. The stem is fairly long, and the leaves numerous, stiff, and standing well up about the head, which is round, small, and very late to form. All the leaves, in winter, become red or violet. This Cabbage is distinguishable in appearance from the Vaugirard Cabbage only by its longer stem and somewhat more numerous leaves. It is the latest of the Savoys, and will bear the hardest frosts.

Norwegian Savoy Cabbage ($\frac{1}{12}$ natural size).

In Belgium there is a coarsely crimped variety of Savoy grown under the name of *Chou de Mai* or *Chou à trois têtes* (*Drie-Kropper*), the head of which is formed by the leaves being twisted, instead of folded or wrapped over one another in the ordinary way. It is sown in August, and planted out either before, during, or after winter, coming in the following May. After the head is cut, the plant produces two or three small secondary heads in the axils of the lower leaves.

In the London market-gardens Savoys are not so much esteemed as Cabbage, but they are largely cultivated by some growers. The seed is sown in March, and the plants are put out under fruit-trees, or in similar positions in the same way as Cabbages. The varieties

mostly grown are the Dwarf Green Curled, Early Ulm, and Vertus. Sometimes they are used as Coleworts when half-grown, in which case they are planted thickly among other crops in any vacant places in the same way as Cabbage Coleworts. During winter, when greens are scarce, Savoys are most in demand. They are very hardy, and are all the better for being subjected to frost, and for this reason they are a good winter crop. The refuse of the seed-beds is sometimes planted out in August to supply Coleworts in winter and spring.

Braganza, Portugal, or **Sea-Kale Cabbage** (*Chou à grosses côtes ordinaire*).—Stem shortish; leaves closely set, with thick, white, fleshy ribs, undulated and slightly cut on the edges, and usually hollowed or spoon-shaped, all forming at the latter end of autumn a small loose kind of head. For a long time a distinction was made of two varieties of this plant, one with green and the other with light-coloured leaves, but the difference is so unimportant

Braganza, Portugal, or Sea-Kale Cabbage ($\frac{1}{12}$ natural size).

Curled Couve Tronchuda Cabbage ($\frac{1}{12}$ natural size).

that at the present day the two kinds are considered identical. The outer leaves and the head of the Couve Tronchuda are very tender to eat. It stands frost very well, and even requires it to bring out its full quality. Under the name of *Dwarf Portugal Cabbage*, a more compact and better-headed variety is sometimes grown in England.

Curled Couve Tronchuda Cabbage.—The ribs of this variety are not so much developed as those of the ordinary kind, but the blade of the leaf is much more curled and undulated. It forms an imperfect head, but bears frost very well, and can be cut all through the winter, when autumn Cabbages have become scarce.

Curled Winter Borecole Cabbage.—Towards the end of winter, one may see in the Central Market, at Paris, a variety of Cabbage which does not form a head, and which the market-gardeners call *Bricoli* Cabbage. This seems to be an intermediate kind between the Green Curled Kale and the Curled Couve

Tronchuda. As far as we have seen, it possesses no special merit beyond its great degree of hardiness.

The *Thick-leaved Coutances* Cabbage resembles closely the

Curled Winter Borecole Cabbage ($\frac{1}{12}$ natural size).

Couve Tronchuda. The midrib of its leaf is not so large, but, on the other hand, it forms a much better head, which in the course of the autumn becomes very compact, white, and exceedingly firm at the heart.

BRUSSELS SPROUTS

French, Chou de Bruxelles. *German*, Brüsseler Sprossen-Kohl. *Flemish* and *Dutch*, Spruitkool. *Danish*, Rosenkaal. *Italian*, Cavolo a germoglio. *Spanish*, Bretones de Bruselas. *Portuguese*, Couve de Bruxellas.

This variety of Cabbage bears some analogy to the Savoys in its dark green and somewhat crimped leaves; but, on the other hand, it has a longer stem than any of the other head-forming Cabbages, and its leaves, although very numerous, do not form a true head. It is grown for the sake of the sprouts, which are produced in the axils of the leaves all along the stem, and of which the small spoon-shaped leaves are very closely and compactly wrapped round one another so as to form small heads, which are round in shape and produced in great abundance. They make their appearance first at the bottom of the stem, and, as these are cut away, fresh "sprouts" appear in succession almost up to the top of the stem. This long-continued production of sprouts, which is maintained in the severest frosty weather, and also the very fine quality of the vegetable, have caused the Brussels Sprouts to be one of the most highly esteemed and most generally grown kitchen-garden plants. There is something singular, from a

physiological point of view, in the circumstance that the principal rosette of leaves of this plant does not form a head, while the secondary shoots or sprouts regularly form very perfect heads. The very reverse of this is mostly found to occur in other Cabbages and in Lettuces, in which the principal leaves of the head enwrap one another closely, while the leaves of the sprouts which they produce stand apart at greater or less distances from one another on the shoots which bear them. Be that as it may, we are indebted to this anomaly for an excellent vegetable.

CULTURE.—The Brussels Sprout is a plant of rather slow growth, and in order to have a crop from the end of October to March, sowings should be commenced in March or April, and continued in succession until June, if a successional crop is desired. When the seedlings are strong enough, they are planted out permanently, leaving a space of 20 in. in all directions from plant to plant of the ordinary variety, and of 16 in. for plants of the dwarf kind. The sprouts will be fit to cut in October, and the plants will continue to bear them all through the winter. They like good, rich, well-drained soil, which, however, should not be too highly manured, otherwise the growth would become too rank, to the detriment of the sprouts, which, under such circumstances, do not head well.

As a rule, in England, Brussels Sprouts are only cultivated in large and market gardens, although they are well deserving of a place in every garden, however small. With a little skill and forethought, they may in warm districts be got to supply the table from September till April. The common rule is to sow one good batch in March or April, and let that serve all purposes. Where, however, a long supply is desired, this is decidedly a mistake, inasmuch as Brussels Sprouts ought to be made use of as soon as they are ready, otherwise they burst or rot, and are useless. Successional sowings should be made to keep up a constant supply.

For early crops the best plan is to sow a pinch of seed in a shallow box, well drained, early in January, and place it in a pit or frame where the temperature is from 40° to 45°. The plants will soon be up, and should be kept close up to the glass until they are large enough to handle, when they should be pricked off into other boxes, or out into a bed in a frame. Plenty of air must be admitted to them after they have again commenced to grow, and if the weather be favourable in the middle of March, they may be planted out-of-doors on the warmest border that can be spared for them. If the plants be taken out with a good ball of earth and planted during showery weather, they will grow away without a check, and a crop of fine large sprouts in September will be the result.

The first sowing out-of-doors should be made in February or March, the main sowing early in April; and if later supplies be required, a small sowing may be made in May or June. When the plants are large enough to be conveniently handled, they should

be pricked out in rows into narrow beds or borders, 5 or 6 in. apart, or more if practicable. The distance apart of the plants for the final planting must in some measure be governed by the space at disposal, but in any case there is nothing gained by overcrowding. Plants for the main crop should be allowed at least 2 ft. apart each way, but if 3 ft. can be allowed between the rows, it will be all the better. If extra fine sprouts are desired, 3 ft. from plant to plant each way must be allowed. For early and late plantations it is not necessary to allow quite so much space as for the main crop.

Soil.—Brussels Sprouts will succeed in almost any kind of soil, provided it is well and deeply cultivated and fairly manured. Poor sandy soil will require a heavy dressing of good manure, whilst lime and burnt clay may be beneficially applied to cold clayey land in preference to rank manure just previous to planting, which would have a tendency to produce gross open sprouts instead of the close medium-sized buttons so much liked in the kitchen. Frequent stirrings of the soil, clean culture, and removing decaying leaves add to their growth and cleanly appearance, and ought to be insisted on. As regards earthing-up the stems, there has been much dispute as to its merits and demerits, but we have seen them grown both with and without that assistance, with much about the same result. In windy places earthing-up is certainly to be recommended, in order to enable them to resist the power of the wind; but as Brussels Sprouts, unlike Cabbage or Broccoli, bear all up the stems, it is not desirable to bury them to any great depth, beyond giving them necessary support. The Cabbage-like heart from the centre of the plant should not be cut off until the crop is fit for gathering. The Brussels Sprout in its proper state is a small, compact one; and very rich culture, while giving large rosettes, does not improve the quality.

Manure water given to Brussels Sprouts during dry weather will help to keep them in a vigorous and healthy growing state; but it is well to remember that overfeeding will spoil this vegetable, which in its best state is neat and compact. By making it coarse and large we make it useless to the good cook, who knows what it ought to be.

Gathering.—In gathering, Brussels Sprouts are frequently broken from the stems of the plants, and sometimes with a portion of the stem adhering to them. This is wrong, inasmuch as it destroys the second crop of young sprouts. A sharp knife should always be used to cut off the sprouts, leaving as much spur as possible. The largest and hardest should always be gathered first.

Brussels Sprouts are chiefly grown in the London market-gardens as catch crops, under orchard trees, or between other vegetables. The seed is sown in April, and the plants, when large enough, are put out wherever a vacant piece of ground occurs. Market gardeners prefer Brussels Sprouts with medium-sized stems to those of rank growth, as from the former they get harder and better sprouts, which realise the most money in the market. In gathering Brussels Sprouts most market gardeners pull up the plants and cart them to the packing shed, where women divest the stalks of the sprouts and pack them in half-bushel or bushel baskets, the largest and plumpest being always put on

the top. The Cabbage-like tops are packed separately in large baskets. Some growers, however, pick the sprouts from the plants as they grow, and leave them to supply a second crop. Brussels Sprouts when in the seed-bed are often attacked by small white-winged flies, which congregate on the under-side of the leaves and greatly injure the plants. In order to get rid of these, an old sack is nailed to two poles, about 6 in. being allowed to hang over one of the poles to act as a flapper. The sack, but not the flapper, is then tarred all over, and two men, one each side the seed-bed, walk quickly along with the sack directly over the plants. The flapper drags over the plants and disturbs the flies, which fly upwards and get stuck to the tar. This several times repeated gets rid of the majority of the insects.

USES.—In Belgium, preference is given to small-sized sprouts, which grow very thickly and close together on the stems; but in France the largest-sized sprouts, as big as a good-sized walnut, are most in favour—another proof that the fine appearance of a vegetable or a fruit is not always an index of its quality, for the smallest and hardest Brussels Sprouts are certainly the most delicate in flavour.

Tall Brussels Sprouts.—Stem 2½ to over 3 ft. high, slender, with numerous leaves set at some distance apart, leaving the stalk bare for a great part of its length, round, slightly hollow or spoonshaped, and very faintly crimped. Sprouts of medium size, very firm, rather pear-shaped, and never so close as to touch one another. This kind is extensively grown in the fields around Paris; it is hardy, and continues to bear for several months, producing the smallest, most delicate, and best "sprouts."

Tall Brussels Sprouts ($\frac{1}{10}$ natural size; sprout, $\frac{1}{2}$ natural size).

Half-dwarf Paris Market Brussels Sprouts.—Strong, straight stem, 20 to 28 in. long; medium-sized leaves, rounded, very slightly crimped, spoon-shaped, borne on long bare stalks and slightly tinged with purple. The sprouts are numerous and closely set on the stem, very firm and rounded, and a light gray-green colour. They remain a long time without opening, and are scarcely larger than a large hazel-nut. The Half-dwarf Paris Market Brussels

Sprout is a very productive variety, regular and hardy. It is the sort preferred by the Paris market-gardeners.

Dwarf Brussels Sprouts.—Stem stout and stiff, usually not exceeding 20 in. in height; leaves more close together than those of the Tall kind, and more crimped. Sprouts generally larger and

Half-Dwarf Brussels Sprouts.

Dwarf Brussels Sprouts ($\frac{1}{10}$ natural size).

rounder, and usually crowded upon one another. This variety is generally somewhat earlier than the Tall one, but it does not continue to bear so long in winter.

In England too much importance is attached to the size of the sprouts, varieties that yield sprouts as large as small oranges being preferred; such varieties as *Aigburth*, *Dalkeith*, and *Scrymger's Giant*, which produce sprouts of a size that in France or in Belgium would be thought much too large.

Before describing the Borecoles, we must notice two very distinct kinds of Cabbages, which come between those varieties which form heads and those which do not. These are the Rosette Colewort and the Russian Kale.

Green Rosette Colewort.—Under the name of Rosette Colewort or Collard, a very distinct variety is cultivated in England, which, although capable of forming a head, is generally cut for use as a Borecole while the leaves are in the rosette form and still young and tender. It is very dwarf, the stem seldom exceeding 8 or 10 in. in height, and bearing numerous closely set, slightly crimped,

rounded, and deeply hollowed or spoon-shaped leaves. If sown early in spring, it comes in in August, and, if left in the ground longer, it forms a small, round, very compact head. But as Cabbages of all kinds are plentiful in autumn, there is no advantage in sowing this kind so early; whereas, if sown in early summer, it comes in at a time when tender greens are scarcest and most in demand.

Russian Kale.—A singular plant, which, at first sight, one would be inclined to take for anything else but a Cabbage. Stem rather large and thickish, 16 to 20 in. high; leaves gray-green, the outer ones darker and half-spreading, the central ones paler and erect, all of them cut nearly down to the midrib into rather narrow divisions, which are entire, or sometimes lobed, and are coarsely crimped on the upper surface. At the latter end of autumn this Cabbage forms a sort of a head, which is small, pretty white, and very compact. Its chief merit is that it bears frosty weather very well. Apart from its singular appearance, it is not easy to say what this plant has to recommend it. It is certainly no advantage to have the veins merely fringed with a narrow border of parenchyma, or spongy substance, instead of being connected by an unbroken tissue, as they are in other Cabbages. Having been grown for some time chiefly in botanical collections, the Russian Kale appeared to have become almost forgotten, and it was later on re-introduced as a novelty into England.

CULTURE.—The culture of Coleworts is very extensive and important in London market-gardens. These are Cabbages pulled for market when about half-grown, and for supplying such every spare corner in market-gardens is planted. As soon as fruit-bushes have been cleared of their crops, rows of Coleworts are planted between them; they are also planted under fruit-trees, no matter how large the trees may be, and also between rows of Moss Roses. The space between Celery ridges is likewise generally planted with Coleworts, as is also that between Asparagus ridges, the edges of which, too, are often cropped with Coleworts. Between the rows of French and Runner Beans and Late Savoys the Colewort is also planted; and, in fact, like Lettuces, it is planted in every empty space where there is a probability of its growing Whole fields, too, are sometimes cropped with it, and are cleared in good time for winter Radishes. The Rosette is grown largely for market, a sowing of it being usually made in May in beds in an open piece of ground; and, when up, the young plants are thinned with small hoes. The strongest plants are first selected for transplanting, and are put in chiefly as catch crops between other vegetables. For spring Coleworts, only the thinnings of the Fulham Cabbage are used. The Rosette is, perhaps, the greatest favourite in the market, its beautiful white heads, when bunched, having an attractive appearance. A kind called Blue Colewort is largely grown for a November crop, as earlier in the year it is apt to "bolt." Coleworts are tied in bunches, packed in waggons, and sold in this way in market. *

* London Rosette Colewort, see pp. 760, 763. Hardy Green Colewort, see p. 760.

BORECOLE or KALE

Brassica oleracea acephala, D.C.

French, Choux verts. *German*, Blätterkohl. *Flemish*, Bladerkool. *Dutch*, Boerenkool. *Italian*, Cavolo verde. *Spanish*, Col sin cogollo, Breton, Berza.

To this section belong a number of very hardy and excellent vegetables, as we think, often more delicate in flavour than the hearting Cabbages. The sprouts of the Scotch and Cottager's Kales, gathered in spring from the stems cut in winter, are excellent in flavour.

Mosbach Winter Kale.—One might suppose that this variety was a cross between the Tall Green Curled Kale and the Couve Tronchuda Cabbage, so much does it resemble the latter in its leaves, which are, to a great extent, entire in the blade, and have very stout stalks, midribs, and veins. Only the margin of the leaves is curled and very finely puckered, almost in the same way

Mosbach Winter Kale.

Tall Green Curled, or Scotch, Kale.

as the leaves of the Curled Kales. The stem is of medium height, rarely exceeding 2 or 2½ ft., and the leaves are disposed along it in tiers, are bent upwards, instead of downwards, from the middle, and are distinguished by their pale green, almost yellow, colour. This plant is not only useful as a table vegetable, but also in some degree as an ornamental plant. It is not very hardy.

Tall Green Curled, or Scotch, Kale; Tall German, or Winter, Greens.—Stem stout and straight, 3 to 5 ft. high, bearing a plume of rather narrow, lobed, deeply cut leaves, very much curled at the edges, and often turned backwards at the end, light green in colour, and from 16 to 20 in. in length. This is a useful

variety for very cold localities, and its leaves are very tender and good after they have been exposed to the action of frosty weather; besides, the plant is ornamental. In the open ground, even in the severest winters, it yields a supply of fresh vegetables of excellent quality.

Intermediate Moss-curled Kale.

Intermediate Moss-curled Kale.—This variety is intermediate in height between the Dwarf Curled Kale, the leaves of which spread upon the ground, and the Tall Green Curled Kale, which sometimes grows 6 ft. or more high. It is rarely above 32 in. in height, and its short, but very broad, leaves are curled to an extreme, the margins being also curiously puckered and twisted. It is perfectly hardy, and in this respect differs widely from the Mosbach Kale, which is rather sensitive to cold.

Curled Green Dwarf Kale, German Greens, Dwarf Curlies, Canada or **Labrador Kale.**—This is a dwarf variety of the Scotch Kale, which it resembles in its leaves; but its stem does not grow more than from 16 to 20 in. high, so that the ends of the leaves often rest upon the ground. Besides its value as a vegetable, it is also a very ornamental plant, either for small circular raised flower-beds in winter or for garnishing dishes on the table.

The Siberian Kale of the Americans is a short-stemmed variety, not so delicately curled as the Curled Green Dwarf Kale, and more blue in colour.

Dwarf Curled Kale, German Greens, Dwarf Curlies, Canada or Labrador Kale ($\frac{1}{12}$ natural size).

Jerusalem Green Curled Kale, or **Asparagus Kale.**—A variety of dwarf but sturdy growth, the margin of the leaves very much crisped or curled, and the partially undeveloped centre leaves tinged with purple on the tips, the veins of a subdued crimson colour. In spring it throws out numerous long, stout, succulent shoots, which may be cooked either green or blanched. The *Imperial Hearting Scotch Kale* is also very productive of sprouts in spring.

Tall Purple Borecole, Tall Purple Kale, or **Purple Winter Greens.**—This plant resembles the Tall Green Curled Kale in everything save the colour of its leaves, which are of a very deep violet-red hue.

Dwarf Purple Curled Borecole.—A sub-variety of the preceding kind, growing only from 16 to 20 in. high. When it is grown true to name, the leaves are almost black, and it contrasts very strikingly with that of the Green Curled Kale, which it equals in hardiness.

Variegated Borecole, or **Garnishing Kale.**—Stem from 20 in. to 2½ ft. high ; leaves divided, slashed, curled, and undulated, like those of the preceding varieties, but variegated, especially after frost, either with green, red, or lilac on a white ground, or with red on a green ground. Several of these forms can be raised individually from seed, especially the Red Variegated and the White Variegated Kale. All these kinds are very ornamental, and in winter very pretty beds can be made with them in the open ground, while the leaves may also be found useful for garnishing the dinner-table. They will bear very severe frosty weather, if they have not previously suffered from an excess of moisture. In growing them, when the plants are sufficiently large, transplant them into poor soil in an open situation. In autumn, select the most beautiful, and, breaking off the large under-leaves, plant sufficiently deep to bring the head close to the surface of the soil.

Variegated Borecole, or Garnishing Kale.

Georgia Collards.—The Cabbage, as we remarked at the beginning, is a plant which properly belongs to cold and temperate climates, and accordingly, amongst cultivated varieties, we find but very few which can endure the summer heat of warm latitudes.

The present variety is one of these, and is very highly esteemed in the Southern United States. It does not form a head, but the leaves, which are large, undulated, and slightly curled at the edges, are folded at the heart or centre, so as to form a sort of bunch, being also variegated with white on the ribs, and presenting somewhat of the appearance of the central leaves of the Cauliflower when the head is just about to form. These leaves are very tender and delicate when cooked, and, in fact, form an excellent table vegetable. The plant grows from 2 to 3 ft. high, according to the nature of the soil in which it is grown and the liberal amount of culture bestowed upon it.

Curled Laciniated Borecole.—A half-dwarf plant, not usually over 20 or 24 in. in height, with long curved leaves, divided into strips almost straight or slightly curved and curled, which give them a feathery appearance. The colour is generally a dull red, or purplish, green, but after the frosts the central part of the plant becomes a vivid red.

Proliferous Borecole.—This rather singular variety is remarkable for producing on the midrib, and sometimes on the smaller veins of the leaf, certain leaf-like appendages, which are curled and cut in the same manner as the leaf itself is at the margin. The plants are also usually, at the same time, variegated with white or red. They are chiefly noticeable as ornamental plants.

Palm-tree Cabbage or **Borecole.**—Stem straight, or slightly curved, attaining a height of 6½ ft. or more, and bearing at the top a cluster of leaves, which are entire, from 2 to over 2½ ft. long and 3 or 4 in. broad, the edges turned and rolled underneath, dark, almost black, green in colour, and finely crimped, like those of the Savoy Cabbages. They grow straight and stiff at first, but afterwards become curved outwards at the ends, giving the plant a very elegant appearance. The Palm-tree Cabbage does not often flower before the third year of its growth, at which time it attains its greatest height. In France it is almost exclusively grown as an ornamental plant. In Italy a variety is grown for table use under the name of *Cavolo Nero*, which seems to us to be identical with this.

Palm-tree Cabbage, or Borecole.

Several varieties of strong tall Cabbages are used for feeding cattle only, and need only a brief mention here. They are as follows :—

Tree Cabbage or **Jersey Kale.**—The stem is straight, stiff, and strong, but comparatively slender, as it seldom attains a diameter

of 1¾ in. In the first year of its growth it does not usually exceed 3 or 4 ft. in height. The plant produces a great number of leaves, which are green, large, cut at the base, but oval-rounded at the end, slightly crimped or puffed on the upper surface, and often over 2½ ft. long.

Tree or Jersey Kale.

Large-leaved Jersey Kale or **Sarthe Cow Cabbage.**—This variety, which comes very near the preceding kind, but is usually not so tall, is especially remarkable for the enormous size of its leaves, which often grow more than 3 ft. long and from 12 to 14 in. broad. It is a very productive cattle-feeding Cabbage, succeeding best in rich soil in a temperate climate, as it is not perfectly hardy.

Flanders Purple Borecole, or **Flanders Kale.**—A cattle-feeding plant of large size, but somewhat smaller than the Tree Cabbage, from which it is also distinguished by the violet-red colour of its leaves and stem. The plant is sometimes branched, in which respect it differs from the Tree Cabbage, the stem of which is most usually unbranched. The leaves of the Flanders Kale also are smaller and narrower in proportion to their length.

English Thousand-headed Cabbage, or **Branching Borecole.**—Another very large kind, differing from the Tree Cabbage in the

Flanders Purple Borecole.

English Branching Borecole.

stem being usually divided into a number of branches, each bearing large leaves almost like those of the Tree Cabbage. Although not so tall as that, it is generally considered more productive; but it is not so hardy, and often suffers from the winters of the middle and north of France.

Improved, or French Thousand-headed, Cabbage.—A very distinct variety, raised in La Vendée, and, unfortunately, rather

sensitive to cold. It branches still more than the preceding kind, and forms a sort of large tuft or small bush, 3 to 4 ft. high, and exceedingly dense and leafy. The leaves are entire, rather long, broader at the base than at the end, and of a very peculiar light or yellowish tint. It is rather tender for the winter climate of the greater part of England.

Improved Thousand-headed Borecole Cabbage.

Marrow Kale.—A large variety of Cabbage, with a very stout and thick unbranched stem, which is swollen chiefly in the upper two-thirds of its length and filled with a sort of marrow or tender flesh, excellent for cattle. The leaves are very long and broad, and constitute a considerable part of the crop. The stem grows 5 ft. or more high, with a diameter of 3 to 4 in. in the thickest part. The Marrow Kale, like the Thousand-headed Cabbage, is sensitive to cold, and the crop must be gathered before severe frost sets in. At the end of summer, and all through the autumn, the leaves are cut and given to cattle. At the commencement of hard weather, when the leaves are all cut, the stems are taken up and stored in an outhouse or shed, where they will be safe from frost, and in this way they will keep all through the winter.

This plant forms the connecting-link between the common Cattle-feeding Cabbages and the Kohl-Rabi, and, in a more general way, between the Cabbages which are grown for their leaves and those which are grown for their swollen stems. The Kohl-Rabi is only a Marrow Kale with the stem shortened into the form of a ball, the marrow or substance of the swollen part being of the same nature, consistence, and taste in both plants.

Red Marrow Kale.

The stem of the Marrow Kale, if cut while young, when the swollen part does not measure more than 20 in. or 2 ft. in length and 2 or 3 in. in diameter, would, in our opinion, form a very palatable vegetable.

Red Marrow Kale.—This differs from the preceding kind only in the red or purplish colour of its stem. It has the same good qualities and the same deficiencies.

In England, a great number of kinds of Borecole or Kale are grown, the leaves of which are either entire or divided, and smooth or faintly crimped, and some of them are as useful in the garden as the much-curled sorts. The principal sorts are :—

Cottager's Kale.—A rather variable kind, with green or violet and more or less curled leaves. Its chief merit is its extreme hardiness.

Egyptian Kale.—A very dwarf variety, which in spring produces great numbers of fleshy shoots, covered with small tender leaves.

Jerusalem, or Delaware, Kale.—The leaves of this are curled at the edges and of a violet tint. The plant produces shoots in spring, like the preceding kind.

Milan Kale.—This is a Borecole, and should not be confounded with the French *Chou de Milan* Savoy. Except that they both belong to the same genus, there is no resemblance whatever between them. The Milan Kale produces a stem from 18 in. to 2 ft. high, clothed with plain, bluntly toothed leaves, and terminated by a close rosette of leaves forming a small head. In spring it throws out a quantity of succulent shoots, which, when cooked, is one of the most delicious of winter greens.

Ragged Jack.—A hardy and productive variety, with long, irregularly cut or slashed leaves, and short, often branching, stem.

The Gallega Cabbage, of Portugal, is a variety with very large green leaves, which are very much crimped and puffed on the upper surface. It is a good cropper, but sensitive to cold.

CULTURE.—The culture of the Cattle-feeding varieties of Cabbage does not come within the scope of this work. We will only say, with respect to such of the Kales or Borecoles as are grown for ornament or table use, that they require the same treatment as late ordinary Cabbages and Brussels Sprouts. They are sown in spring in a nursery-bed, the seedlings are pricked out in May, and afterwards finally transplanted in the course of the summer. The crop comes in through the autumn and winter, and sometimes through the whole of the following year. The plants do not run to seed until the spring of the second year after that in which they were sown.

KOHL-RABI

Brassica Caulo-rapa, D.C.

French, Chou-rave. *German*, Oberkohlrabi. *Flemish*, Raapkool. *Dutch*, Koolraapen boven den grond. *Danish*, Knudekaal. *Italian*, Cavolo rapa. *Spanish*, Col rabano. *Portuguese*, Couve rabano.

The useful part of this plant is its swollen, fleshy, and pulpy stem. Some cattle-feeding varieties of Cabbages afford examples of enlargements of this kind, but in none of them is the stem so completely swollen or so much altered in appearance. In the Kohl-Rabi, the swelling of the stem, which commences close to the surface of the ground, is almost a ball, the size of which in some

varieties does not exceed that of an average-sized orange, while in others it nearly equals that of a man's head. The Kohl-Rabi is not sufficiently known or valued in France or England, for it forms an excellent vegetable, especially when used before it is fully grown, in which state it is generally eaten in Germany, while in Italy the swollen stem is often eaten before it has grown as large as a hen's egg.

CULTURE.—The kitchen-garden varieties are sown in a nursery-bed from March to the end of June. When the seedlings are from a month to six weeks old, they are permanently planted out, and the plants may commence to be cut for use about two months after. In planting them out, a space of from 14 to 16 in. should be left from plant to plant, according to the variety grown. Some varieties also are grown for cattle-feeding, and for this purpose the largest and latest kinds are employed. They are sown in April, planted out in May and June, and cut for use only in autumn.

USES.—The swollen part of the stem is eaten before it is quite fully grown, when it is tender and has the combined flavours of a Cabbage and a Turnip.

Common White Kohl-Rabi.

Common White Kohl-Rabi.—Leaves rather stout, 1 ft. to 16 in. long, with white stalks as thick as the little finger; ball very pale green, almost white, and 6 to 8 in. in diameter. In this variety the ball takes a long time to form—*i.e.* nearly four months—before it is large enough to be eaten, and six or seven months before it is fully grown. The ball is sometimes flattened, and at other times almost oblong in shape. The leaves, after falling, leave behind them broad whitish scars.

Purple Kohl-Rabi.—This differs from the Common White Kohl-Rabi only in the colour of the ball, the leaf-stalks, and the veins of the leaves.

These Kohl-Rabis keep well during the winter, but being liable to become hollow and tough, it is well to make use of them before March.

White Goliath Kohl-Rabi.—A very late sort, producing larger balls than the preceding. The skin is pale green, almost white.

The flesh is fine-grained and of excellent quality, even in full-grown plants. The lateness of this variety makes it valuable for autumn and winter use. Pulled in October, before the balls have attained their full size, and stored under cover, they will keep good for several months.

The *Purple Goliath K.* differs from the above only in the purple tinge of its ball.

White Vienna Kohl-Rabi.—A handsome, very delicately formed, and early variety, differing from the Common White kind in the fewness and smallness of its leaves, which are seldom more than 8 or 10 in. in length, with stalks no thicker than a goose-quill. The ball also forms more speedily in this variety, and is large enough to be eaten in two months and a half or three months from the time of sowing.

Vienna Kohl-Rabi
($\frac{1}{3}$ natural size).

Early Purple Vienna Kohl-Rabi.—This variety, the ball of which is purple, is in most other respects the same as the preceding kind, but without its delicacy of form or earliness. They are the two best kinds for kitchen-garden culture, especially for forcing or late sowings.

The *Artichoke-leaved Kohl-Rabi* is a rather late and moderately productive variety, only remarkable for the peculiarity of its leaves, which are divided into segments, and at some distance look like the leaves of an Artichoke.

The *Neapolitan Kohl-Rabi* with curled leaves is, in fact, of more account as Borecole than as a Kohl-Rabi, as the swelling of the stem is often of very small dimensions.

TURNIP-ROOTED CABBAGE (SWEDISH TURNIP)

French, Chou-navet. *German*, Kohlrübe, Wrucken. *Flemish*, Steekraap. *Dutch*, Koolraapen onder den grond. *Danish*, Roe. *Italian*, Cavolo navone. *Spanish*, Col nabo, Nabicol. *Portuguese*, Couve nabo.

The varieties of Turnip-rooted Cabbages differ from the Kohl-Rabi in that, instead of having the stem swollen over-ground, they produce, partially buried in the soil, a thick root which is about as long as it is broad, resembling a huge Turnip, and of which the flesh is yellow in the Rutabagas or Swedish Turnips, and white in the other kinds. The characters of the leaves and flowers of these plants indicate plainly that they are true Cabbages.

CULTURE.—All the varieties like a stiff and moist soil, and grow best in climates that are a little moist. They suffer from very hot

weather, but are not affected by frost, one of their chief merits being their extreme hardiness. They are best sown, where the crop is to be grown, in May and June, and the plants are thinned out so as to leave a space of 14 to 16 in. from plant to plant in every direction, after which no other attention is necessary, except the occasional use of the hoe, and watering when needed.

USES.—The roots are eaten boiled, and have almost the same flavour as the Kohl-Rabi. They are in the best condition for table use if lifted before they have reached their full growth. The Swedish or Turnip-rooted Cabbage is an excellent vegetable, deserving to be more used than it is.

White Swedish Turnip, or **White Swede.**—Root short and broad, somewhat top-shaped, and often irregular in form; skin white, sometimes slightly tinged with green around the neck; leaves 14 to 20 in. long, cut at the edges, and resembling those of the Kohl-Rabi. Flesh of the root white.

White Swedish Turnip.

Budlong's White Improved Turnip, or Swede, an American variety of this, only differs from it in being rather rounder, perhaps, in shape.

The *Bredstone Swede,* another American variety, is a regularly shaped root, more tapering than the White Swede, and appears to come midway between that and the White Smooth Short-leaf Swede, described farther on. The flesh is white, delicate in flavour, and of excellent quality.

White Purple-top Swedish Turnip. — A sub-variety of the White Swede, from which it differs only in the red or purple tinge of the neck of the root; the leaf-stalks and the veins of the leaves also are often of the same colour. Flesh of the root white.

White Smooth Short-leaf Swedish Turnip.—A very distinct variety, with a flat root, broader than long, more clean-skinned and generally more regular in shape than the two preceding kinds. The leaves are shorter, more entire, and of a somewhat deeper

green. This is especially a kitchen-garden variety, and is considerably earlier than any of the preceding kinds, so that it can be sown up to July. The flesh of the root is white.

White Smooth Swedish Turnip ($\frac{1}{3}$ natural size).

White Early Strap-leaf Swedish Turnip.—Root almost spherical and generally well-shaped; the underground portion white, the upper part greenish or bronze-coloured; neck very fine, leaves rather small in comparison with the size of the root, broad, oval or rounded and entire. The flesh of this Swede is very white, tender, and agreeable to the taste, specially if used before the root has attained its full size.

Green-top Swedish Turnip.—Root round, with a yellow skin, deeply tinged with green on the part over-ground, and especially around the neck. Flesh yellow.

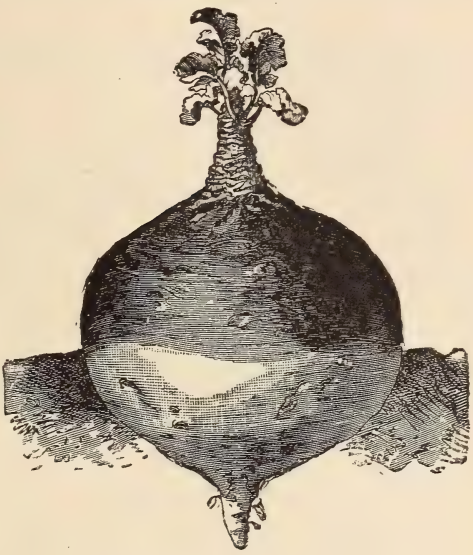
A variety which is almost the same as the Green-top Swede is found in the United States under the name of *American Green-top Yellow Rutabaga.* It only differs from the other in having its leaves slightly twisted and almost curled.

Under the name of *Finland Water-radish* a plant used to be cultivated which did not appreciably differ from this, or, at the most, was only a form of it in which the root was slightly flattened.

Yellow Purple-top Swedish Turnip.—This variety only differs from the preceding one in the root being a purplish red colour above-ground. In Great Britain, where Swedish Turnips are grown on a very large scale, and take almost the same place in field culture which the varieties of Mangold-Wurzel occupy

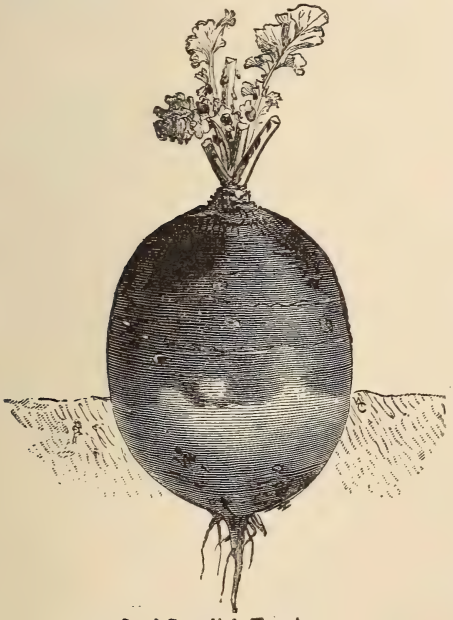
White Early Strap-leaf Swedish Turnip.

in France, the Purple-top Swede is most in favour. Of this there are a great many forms, the most noteworthy of which are the Skirving, the Champion, Bangholm, Imperial, Hall's Westbury, and West Norfolk, all of which are to be recommended for the great size and very regular form of their almost perfectly spherical roots; the newer variety Monarch (*syns.* Elephant, Mammoth, Tankard), with an oval root; also Laing's variety, which has an equally large and well-shaped root, and is especially distinguished by having the leaves entire.



Yellow Purple-top Swedish Turnip ($\frac{1}{3}$ natural size).

It is altogether owing to the climate that Swedes are not so much grown in France as they are in England. Hot, dry summer weather is unfavourable to this plant, which does best in a climate that is rather moist, and bears frost well. In Brittany, where the climate is nearly the same as that of England, Swedes are very extensively grown and do well.



Oval Swedish Turnip.

The Drummond, East Lothian, Bangholm, Imperial, Hall's Westbury, West Norfolk, Shamrock Purple-top Swedes, the Fettercairn Green-top Swede, and the Shepherd's Golden Globe Bronze-top Swede differ but little from the preceding varieties.

Hartley's Bronze-top Swede, oval in shape and short in the collar, is largely cultivated in Canada.

Oval Monarch, Tankard, or **Elephant Swedish Turnip.**—A large, oval-shaped not deep-rooted variety; the unburied portion red; strong leaf-stalks; leaves only slightly cut, with rounded edges and slightly crimped. A heavy cropper; much grown in England for cattle-feeding.

Early Flat Yellow Swedish Turnip.

The variety called *Kangaroo* resembles the Oval Swede in shape and growth, but differs from it by the green-bronzy colour of the neck.

Early Flat Yellow Swedish Turnip.—This is more a kitchen-garden than a field variety, with a flat, smooth, and clean-skinned root, faintly tinged with green on the upper part; leaves rather few, short, and closely set. The root of this variety swells more speedily than that of any other kind, and it is the best for kitchen-garden culture.

Other and true Turnips will be found in their place farther on in this book.

Chinese Cabbage (*Brassica sinensis*, L.; Chinese, *Pak-choi*). Native of China.—Annual.—Although this plant is undoubtedly a Cabbage, it is more like a Leaf-Beet or Chard. The leaves are oblong or oval, dark shining green, and narrowed to a long, very white, swollen and fleshy stalk. It soon runs to seed, and the flower-stems resemble those of a Cabbage; the seed-vessels, however, are shorter and thicker than those of the European Cabbages. The seed is round, small, and brown or blackish red. Their germinating power lasts for five years.

Chinese Cabbage.

CULTURE.—The Pak-choi grows rapidly, and may be sown almost all through the year. If sown in the spring, however, or in

summer, the plants soon run to seed. Accordingly it is usually grown in the same way as Turnips; that is, it is sown about the end of July, or in August, for an autumn or early winter crop. The seed is sown in drills, with a space of 16 to 20 in. between them, and the seedlings are thinned out two or three times. When they are fully grown, the leaves are often 20 in. long, including the stalk. The leaves are eaten boiled, like Borecole, and the ribs are sometimes sent to table like Asparagus, Broccoli, or Chard Beet.

Heading Chinese Cabbage or **Pe-Tsai** (*Brassica sinensis*, L., *var.*). Native of China.—Annual.—The Pe-tsai, like the Pak-choi, differs entirely in appearance from the Cabbages of Europe, being rather like a Cos Lettuce in aspect. Like it, it sometimes forms a long, rather full and compact head, and sometimes grows in a plain cluster of half-erect leaves, disposed in the form of a funnel. The ribs are not so white as those of the Pak-choi; they are pretty thick and fleshy, and the blade of the leaf, although narrower at the base, is continued down the whole length of the stalk. The leaves are slightly crimped, undulated at the edges, and pale or light green. The seed very much resembles that of the Pak-choi. Its germinating power lasts for five years. The floral parts of the plant are similar to those of the Pak-choi, and both plants are cultivated and used in precisely the same manner.

Improved Heading Chinese Cabbage.

There has also been imported from China a form of *Brassica sinensis* with perfectly round dark green leaves, narrowed at the base into the stalk, forming extremely dense tufts or rosettes; the flower-stems also are much shorter than those of the Pe-tsai or the Pak-choi. This plant does not appear to be of much account as a table vegetable. Botanically, it exhibits in excess the characteristics which distinguish *Brassica sinensis* from *Brassica oleracea*.

Improved Heading Chinese or **Pe-tsai Cabbage.**—A fine strain of Chinese Cabbage, vigorous and rapid. It can be recommended as a winter vegetable for mild climates. The leaves are large, light green, and curved at the edge; the rib is broad and white, only slightly bare at the base. The first leaves are spreading and curved outwards, the later ones cover one another like those of a Cos Lettuce, and form a fine tall head, weighing easily 4 lb. and over. It should be sown during summer for use in the autumn

and winter. Successive sowings may be made in order to lengthen the period of production. Of a milder flavour than the European sorts, it may be eaten either raw or as a salad, or cooked. Boiled, minced, and seasoned with butter, it is as delicate in flavour as boiled Endive. In our grounds on the Riviera it has done very well; sown in August and September, the heads were fit for use from November to February.

CAPER-BUSH

Capparis spinosa, L. *Capparidaceæ*

French, Caprier. *German*, Kapernstrauch. *Flemish* and *Dutch*, Kapper-boom. *Italian*, Cappero. *Spanish*, Alcaparra. *Portuguese*, Alcaparreira.

A native of the south of Europe.—Perennial.—A shrub growing 3 to 5 ft. high, with numerous branches, bearing a pair of hooked spines at the base of each leaf-stalk. Leaves alternate, round, thick, and glistening; flowers about 2 in. in diameter, white, with numerous violet stamens, very pleasing in effect; seed large, kidney-shaped, and gray-brown in colour. There is also a variety without spines, from which the crop is more easily gathered and without danger of wounding the hands. It is to be preferred to the spined one, and can be reproduced from seed.

Caper-bush ($\frac{1}{10}$ natural size; detached branch, $\frac{1}{3}$ natural size).

CULTURE. — The Caper-bush can only be cultivated profitably in the climate of the Olive-tree, where it is almost always planted in dry stony places, on embankments, declivities, and other positions which are difficult to utilise in any other way. It differs from most of the plants described in this work in being really a wiry bush, but as the buds are so much used in cookery, it is included here. In some of our Colonies it could be easily grown; in England, or cold countries, it only lives when protected, and then with difficulty. We have, however, grown and flowered it in brick rubbish in a large pot. The flower

is very beautiful and distinct, especially to those who do not know it, in countries where it grows freely.

USES.—Under the name of "Capers," the flower-buds, gathered when they are as large as Peas, are pickled in vinegar. They are valued in proportion to the smallness of their size.

CAPSICUM, or RED PEPPER

Capsicum annuum, L.

French, Piment. *German*, Schotenpfeffer. *Flemish* and *Dutch*, Spaansche peper. *Italian*, Peperone. *Spanish*, Pimiento. *Portuguese*, Pimento.

Native of South America.—Under cultivation this plant is an annual, although several species may be perennial in warm countries.—All of them have erect, branching stems, which become almost woody. The leaves are spear-shaped or more or less widened, terminating in a point, and narrowed at the base into a more or less elongated stalk; flowers white, star-shaped, solitary in the axils of the leaves, and succeeded by seed-vessels very diversified in shape, with a somewhat fleshy skin, at first dark green turning to red, yellow, or dark violet when ripe, always hollow, and containing white, flat, kidney-shaped seeds, attached in great numbers to a sort of fleshy cord. These seeds, and also the interior tissue of the seed-vessel of most of the varieties, contain an acrid juice which is very hot or burning to the taste. Their germinating power lasts for four years.

CULTURE.—The Capsicum is grown in the same manner as the Egg-plant (*see* Egg-plant). In the climate of Paris, all the varieties require to be sown in a hot-bed, and even in the south of France this practice is followed, at least in the case of the large-fruited kinds. In Spain, where they are very extensively grown, they are almost always forwarded by sowing in February under a frame, the seedlings being planted out in the open air towards the end of April.

Capsicums may in some warm parts of England be successfully grown in the open air, but where large supplies are needed it is advisable to have some under glass also, in case of failure of the outdoor crop. The seeds should be sown early in April, on a gentle hot-bed, or in pots or pans well drained and filled with sandy loam and leaf-mould in equal parts; and if plunged in a gentle bottom heat they will germinate more quickly, and the plants will be much stronger than when only placed on plain shelves, etc. As soon as the plants are large enough they should either be potted off singly into 4 in. pots, or three plants placed triangularly in 6 or 8 in. ones. In the latter case, it will be found best to only fill the pots three-parts full at first, with a view to earthing them up when the soil becomes full of roots.

In order to have dwarf and healthy plants, it is necessary to place them as close to the glass as possible, in a temperature of 65° to 70°, giving them plenty of water and admitting air freely. Plants that are potted into 4 in. pots should not be allowed to become pot-bound, but be shifted into 6 or 8 in. ones.

Those plants that are to be turned out of doors should be gradually hardened off towards the latter end of May, and in June they may be planted out into a warm border under a south wall. They should be planted 10 or 12 in. apart, well watered when necessary, and in the event of cold weather setting in should have some slight protection afforded them; and if the season be favourable, they will ripen their fruit from the end of August to the middle of September. It is only in the warm southern counties that we have seen a good result with Capsicums in the open air.

Where there are pits or frames available for growing Capsicums, they are the best places in which to grow them. Frames recently cleared of Early Potatoes answer the purpose capitally. The plants should be put in 1 ft. apart, kept well watered at the roots, and be frequently syringed overhead on sunny afternoons, and shut up with plenty of sun-heat. When in flower, abundance of air must be given them, to assist them to set their fruit, after which time liberal supplies of manure-water may be given them with advantage. By adopting this method it is astonishing the quantities of fine large fruit that can be gathered from a three-light frame.

A light, rich soil, composed of turfy loam, rotted leaf-mould, and cow-manure in equal parts, with a little silver sand added, is best suited to them; but when grown and fruited in pots, a more solid soil will be found best.

Well-ripened pods of Capsicums will keep good for several years if placed on a dry shelf, and the seed will germinate at six or seven years old if kept in the pods until it is sown.

Insects, etc.—The principal enemies of the Capsicum are green fly and red spider; the fly may be easily kept in subjection by fumigation, and the spider by a free use of the syringe on the foliage, and maintaining a warm, humid atmosphere. Those planted out-of-doors are generally most affected by red spider. The best way in this case is to give the plants frequent waterings overhead and at the roots, and promote a free growth. Curl in the leaf and fruit may often occur in outdoor plants in the autumn; this is, however, more or less occasioned by the cold nights, following days of extreme heat. The remedy is to shade slightly during the day, and afford a warm covering at night. In the many districts where the culture of Capsicums may not be possible in the open air, the pits, frames, and houses, often little used during the summer months, offer good places in which to grow them.

In the London market-gardens Capsicums are grown in Cucumber-houses or similar places where a brisk heat and plenty of moisture are maintained. The seeds are sown in pots in April, and when large enough the young plants are potted six or eight together in an 8 in. pot in good rich soil and put on stages in a well-lighted position. Plenty of water is given them whilst growing. Some plant them out in frames, and in this way obtain abundance of fruit, but the most profitable way is pot-culture or frame-culture.

USES.—The seed-pods, green or ripe, are much used as seasoning, especially in hot countries; they are also pickled in vinegar. When dried and ground, they make cayenne or red pepper. The pods of some of the large kinds, which are very fleshy and not hot, are used as vegetables in about the same way as Egg-plants. A good instance of the slowness with which the use of vegetables is made known is afforded by the large green mild variety of Capsicum, which is so much eaten over a great part of Spain and some of the adjoining French departments. It was carried by the Spaniards into Naples during their dominion there in the sixteenth and seventeenth centuries, and has since remained in common use there, without spreading farther. It makes an excellent salad, having all the flavour of the Capsicum without pungency, and enters into various light and pleasant dishes of the Italian and Spanish cooks.

Common Capsicum.—A great many, if not all, of the cultivated varieties of Capsicum appear to have been derived from this species, which is successfully cultivated in the climate of Paris as an annual, with the assistance of a little artificial heat at the commencement of its growth. It grows pretty tall, has leaves longer than broad, white and rather small flowers, and usually long seed-pods. The acrid or burning principle in the seed-pods is in inverse proportion to their size. The large kinds are usually mild in flavour, the medium-sized sometimes mild and sometimes the reverse, while the small kinds are invariably very pungently hot to the taste.

Long Red Spanish Pepper.

Long Red Capsicum, or Guinea Pepper.—This variety, which is the most extensively grown of all, has all the characteristics of growth just described. The seed-vessels are pendent, slender, long, conical in shape, often curved and twisted, sometimes 4 to 5 in. in length, and about 1 in. in diameter at the base. When ripe, they are a very fine brilliant red, and usually rather hot to the

taste, but in this respect great differences occur between one plant and another, without any external indication to mark which are very hot and which are mild in flavour.

Long Cayenne Pepper.—Under the occasional name of Long Cayenne Pepper, a sub-variety of the preceding kind is grown, which has the seed-vessels narrower, slightly curved at the end, pendent, seldom more than $\frac{2}{5}$ in. in diameter and about 3 in. in

Long Cayenne Pepper.

Cardinal Pepper.

length, and always very hot to the taste. This plant, however, should not be confounded with the true Cayenne Pepper, which is a perennial and belongs to a different species, too tender for the climate of France.

Cardinal Pepper.—A distinct strain of Long Red Pepper, less than 1 ft. in height, of compact, bushy, vigorous growth, characterised not only by its small stature but also by its earliness and the great size of the seed-vessels. The latter are very red in colour, slightly curved and undulated, and should be mild to the taste.

Long Yellow Capsicum.—This variety only differs from the Spanish or Guinea Pepper in the colour of the seed-vessels, which

are bright glistening yellow, and usually very hot in flavour, seldom more than 4 in. long, slender in shape, and often slightly curved.

Long Black Mexican Pepper.—Seed-vessel thin, straight or slightly undulated, 7 to 9 in. in length, shining black, as pungent as the Cayenne Pepper. Quite distinct from the other sorts of Capsicums.

Long Yellow Pepper.

Long Black Mexican Pepper.

Chili Pepper, or **Chillies.**—The appearance of this variety is very distinct from that of the other kinds, as it has a very branching, rather low-growing stem, the spreading branches of which form a dwarf broad bush, seldom more than 16 to 20 in. high. Leaves small, narrow, and numerous; flowers small and white, succeeded by slender and long-pointed seed-vessels about 2 in. long and scarcely $\frac{2}{5}$ in. in diameter, very often growing erect, very bright scarlet when

Chili Pepper, or Chillies.

ripe, and very hot to the taste; they are produced in the greatest abundance, sometimes appearing to equal the leaves in number. This is one of the earliest and most productive kinds, and is the most suitable variety for gardens in the north of France. In addition to its value as a kitchen-garden plant, it is also highly ornamental, from the fine effect produced by the numerous brilliant-coloured seed-vessels relieved against the green of the foliage.

Red Cluster Pepper.

The **Coral Gem Bouquet Pepper** is a very pretty American variety of the above, producing numerous short and regularly shaped bright red fruit, in bouquets resembling clusters of coral.

Red Cluster Pepper.—A compact, much-branching plant, with numerous small leaves, and an abundance of flowers at the ends of the branches, succeeded by branches of slender, pointed pods, curved, and bright red; not so long as those of the Chili Pepper, but much thinner and pungent.

Cherry Pepper.—Some botanists make this a different species under the name of *Capsicum cerasiforme.* In its habit of growth, however, it comes very close to the varieties of *Capsicum annuum,* and is distinguished from the Spanish or Guinea Pepper by the shape of its seed-vessels, which are almost spherical, with a diameter of nearly 1 in. in all directions. They are extremely hot to the taste, and somewhat late in ripening. In support of the opinion that this Pepper is simply a variety of *Capsicum annuum,* it is often found bearing seed-vessels more or less long in shape, and apparently reverting to the common Spanish or Guinea variety.

Cherry Pepper (branch, $\frac{1}{10}$; fruit, $\frac{1}{2}$ natural size).

There is a sub-variety of it with yellow seed-vessels, very seldom met with in cultivation, and which, except in the colour of its seed-vessels, exactly resembles the ordinary Cherry Pepper.

Cranberry Pepper.—A Chili Pepper with round, erect, very numerous fruits, smaller than in the Cherry Pepper, and hardly larger than big peas. They form compact bouquets, and have a very burning taste. This Pepper possesses the same qualities as the Chili Pepper, and can be used as a condiment or as a plant for ornament.

Large Bell Pepper or Capsicum ($\frac{1}{3}$ natural size).

Large Bell Pepper or Capsicum.—A rather thick-set plant, with large leaves of light green; branches short and stiff; flowers large, and often irregular in form; seed-vessels blunt and squared at the ends, with four deep furrows and four corresponding prominent ridges along the sides; flesh rather thick; seeds few. This Pepper is entirely free from the acrid or burning pungency which characterises some other kinds. The variety of it which is most commonly grown produces seed-vessels about 2 in. in length and the same in diameter. This is a form that may be eaten as a vegetable, and a very pleasant addition it is, as the Italians cook it. Of late years this variety has been partly superseded by the Improved Bull-nose Capsicum, described hereafter.

Improved Bull-nose Pepper.

In the south of France and in Spain a form is

Ruby King Pepper.

scarlet; fleshy, and mild in flavour. The pods contain very few seeds, which to the seed-grower is a great drawback, although an advantage in cooking.

Ruby King Capsicum. —A very productive variety, with large, red seed-vessels, somewhat variable in shape, square near the stalk, and more or less tapering at the top.

Golden Dawn Capsicum. — There are several known strains of Yellow Bell-shaped Capsicums, some of them with erect-growing fruit, and others in which the fruit is pendent. Of these the Golden Dawn Capsicum is the most interesting and profitable to cultivated which has the seed-vessels much larger and somewhat rounder in shape, but with the furrows very deeply marked, especially towards the end of the seed-vessel. It is not unusual, in this variety, to see seed-vessels measuring from 3 to 4 in. across every way. It is a very late kind, and does not keep well.

Improved Bull-nose, or Sweet Mountain, Capsicum. — A smaller plant, less branching, not so leafy, and decidedly earlier than the Large Bell Capsicum. The seed-vessels also are larger, smoother, and fewer; in colour a very fine glossy

Golden Dawn Pepper.

grow. It is a dwarf branching plant, with pendent seed-vessels about 1½ in. in length and of about the same thickness; in colour a beautiful bright yellow, sometimes orange. It is fairly productive, and about as early as the Sweet Mountain Capsicum.

Mammoth Golden Queen Capsicum. — A strong plant, with abundant leaves of dark green colour, and slightly spoon-shaped. For earliness it equals the Golden Dawn Capsicum, and surpasses the Sweet Spanish Capsicum. It is distinguished from both by the greater size of its seed-vessels.

Mammoth Golden Queen Pepper.

Monstrous Capsicum.—The seed-vessels of this variety are up to a certain point, intermediate between those of the Guinea Pepper and those of the Bell Pepper, but they surpass both in size. They are an irregular ovoid or conical shape, swollen in the part next the stalk, and narrowed at the other end, usually more abruptly on one side than on the other, so that one side is generally quite convex, while the other is more or less concave. The appearance of the seed-vessel is well indicated by the name of Sheep's-head Pepper, which is sometimes given to it. Well grown, it measures about 6 in. in length, with a diameter of about 3 in. in the thickest part; and, when ripe, it is a

Monstrous Capsicum (⅓ natural size).

fine deep red and perfectly mild in flavour, and therefore one of the kinds that have a distinct value for use in the green state.

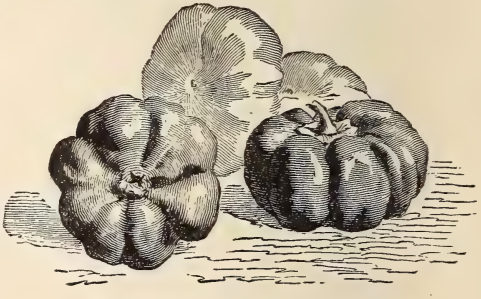
Elephant's Trunk Capsicum.—Seed-pod bright red, large, thick. Broad, and more or less ribbed at the base, tapering progressively towards the end. Like most large-fruited Peppers, it is mild in flavour. In growth and productiveness it resembles the Monstrous Pepper, from which it has probably been derived.

Spanish Mammoth Capsicum ($\frac{1}{3}$ natural size).

Spanish Mammoth Capsicum.—The seed-vessels of this variety resemble those of the Monstrous Capsicum in size, but their shape is that of a cone, or rather a prism, with rounded angles and truncate at the end. They are 6 or 7 in. in length, with a diameter of between 2 and 3 in. at the base, and rather more than 1 in. at the extremity. They are very handsome, and very mild in flavour.

Of this variety there are two forms, one of which has bright red, and the other fine yellow seed-vessels. Only in very warm climates do the seed-vessels attain their full size. Very fair specimens of it, which have come from Valencia or Algeria, may be seen in Paris, in the shops where the produce of the south of Europe is sold; but it is almost impossible to grow anything like them in the climate of Paris.

Red Tomato Capsicum, or American Bonnet Pepper. — This Pepper has some resemblance to the Bell Pepper, but the seed-vessels are much shorter, and are marked with numerous ribs and furrows, like some kinds of Tomato. When ripe, they are of a fine bright red, and measure about 2 in. across and about 1 in. in depth. This is not a very productive kind, and is chiefly interesting on account of the singular shape of the seed-vessels, which are usually mild in flavour and only hot



Red Tomato, or Squash, Pepper.

in exceptional cases; the flesh is always rather dry and thin. There is a sub-variety with yellow seed-vessels.

Early Dwarf Red Squash Capsicum.—Of dwarfer habit, less leafy, and earlier than the Tomato Capsicum, and therefore a good substitute for it in places where that fails to ripen its pods, although the fruit is not perhaps quite as regular in shape. The fruit is sometimes pungent.

Early Dwarf Red Squash Pepper

Celestial Capsicum. — Of medium size, erect, and branching. It is something like the Chili Pepper, but smaller and not so bushy. The pods are numerous, erect, and conical; in colour white, striped purple at first, which gradually changes to yellow, and finally to scarlet. The contrasting colours of the pods on the same plant are strangely effective.

Other varieties:—

Violet-coloured or **Black Capsicum.**—A vigorous plant, often over 3 ft. in height, with violet stems. Fruit variable in shape, sometimes short conical, but oftenest four times as long as broad; deep violet-red when ripe. Very pungent.

Celestial Capsicum.

Chinese Giant Pepper.—A late, leafy variety, with large square fruit of a brilliant red.

Kaleidoscope Capsicum.—This plant has the fine shape of the Celestial Pepper, with spreading branches. Fruit at first yellow-white, changing to orange, and then rose or pale red.

Procopp's Giant Capsicum.—A kind of Monstrous Capsicum, the fruits being very large, bumpy, and twisted like those of the French varieties.

Golden Upright Capsicum.—A small and early variety, with upright square pods of beautiful yellow.

The names of Bird's-beak Pepper and Mad Pepper are sometimes given to the seed-vessels of the smallest varieties of *Capsicum annuum*, which are remarkably hot to the taste ; but, properly speaking, these names should be applied to the seed-vessels of *Capsicum frutescens*, which only grows well in tropical climates

CARAWAY

Carum Carvi, L. *Umbelliferæ*

French, Carvi, Cumin des prés. *German*, Feld-Kümmel. *Dutch*, Karvij. *Danish*, Kommen. *Italian*, Carvi. *Spanish*, Alcaravea. *Portuguese*, Alcaravia.

Native of Europe.—Annual or biennial.—Root as thick as the thumb, long, yellowish, with white compact flesh, which has a slight carrot flavour ; leaves chiefly radical, numerous, composed of opposite whorled leaflets ; leaf-stalk channelled, hollow and undulated ; stem straight, 1 to 2 ft. high, branching, angular, and smooth ; flowers small, white, in umbels ; seeds oblong, rather curved, marked with five furrows, aromatic, and of a light brown colour. Their germinating power lasts for three years.

Caraway.

CULTURE.—The seeds are often gathered in the meadows, where the plant grows naturally. When the plant is cultivated, the seed is sown in drills, in May or June. As soon as the seedlings are pretty strong, they are thinned out, and nothing further is required, except to keep the ground free from weeds, until the crop is gathered in July of the year after that in which the seed was sown. By sowing some of the seed as soon as it is ripe, plants may be raised which will run to seed in the summer of the following year, and a month or two may thus be saved in the cultivation of the crop, as compared with the ordinary mode of sowing.

USES.—The root may be eaten, but is seldom so used. The

leaves and young shoots are sometimes eaten. The seeds are used for flavouring bread in Germany and other countries, and certain kinds of cheese in Holland. They are of very ancient use, and are still used in bread, pastry, cheese, sweets, and sauces.

CARDOON

Cynara Cardunculus, L. *Compositæ*

French, Cardon. *German*, Kardone, Cardy. *Flemish*, Kardoen. *Italian*, *Spanish*, and *Portuguese*, Cardo.

Native of Southern Europe.—Perennial.—Notwithstanding the different botanical names which have been given to them, the Artichoke and the Cardoon appear to belong to the same species, cultivation having, in the case of the latter, developed the leaf-stalks, and, in the former, the receptacle of the flower. The Cardoon is a larger plant than the Artichoke, and of a more vigorous habit of growth, but the botanical characteristics and the general appearance of both present the greatest analogy to each other. In the Cardoon, the stem, which attains a height of from 4 to 6½ ft., is channelled and of a whitish hue ; the leaves are very large, pinnated, slightly gray-green on the upper surface, and almost white underneath, and armed, in several varieties, at the angle of each division with very finely pointed yellow or brown spines from about ¼ in. to over ½ in. long. The very fleshy leaf-stalks or ribs are the edible part of the plant. The flowers, which have usually pointed scales, resemble those of the Artichoke, but are smaller. The seed is thick, oblong, rather flat, and angular, gray, striped or streaked with dark brown. Their germinating power lasts for seven years.

CULTURE.—Unlike the Artichoke, which is almost always propagated by means of offsets, the Cardoon is always raised from seed, which is usually sown in May, in holes or "pockets" filled with compost, and made at a distance of about a yard from one another in every direction. It might be sown earlier in pans on a hot-bed, but this practice has few advantages, as the Cardoon has ample time to develop itself during the summer and autumn, and is not a vegetable that is sought after before its natural season. The ground must be kept very clean, and the plants should be plentifully watered through the summer. As they will not have grown large enough to touch one another before September, the ground between the rows may be utilised in the meantime by sowing some other crop there. The stalks or ribs are blanched by tying them together and wrapping them round with straw, which is also tied up with cord, bast, etc. The plants are then earthed up, and left so for about three weeks, when the stalks or ribs will be in proper condition for use ; but if left longer than this, they will be in danger

of rotting. The Cardoon does not bear frost; therefore, before severe weather comes on, the plants should be taken up and placed in a vegetable-house for winter use.

The Cardoon, if treated in the same manner as Celery, will generally be found to succeed; the only difference is in the mode of blanching, which requires more care than blanching Celery. Thorough blanching is essential, in order to bring out the delicacy of flavour possessed by the Cardoon, without which it is worthless. It is better to have small heads well blanched and crisp than to have large rank ones half-blanched, and consequently tough and strong. In order to have good tender heads, it is necessary to grow the plants from the beginning to the time of blanching without a check, and this can only be done by planting them in deep, rich soil, and keeping them well supplied with water at the roots during dry weather.

Where Cardoons are in demand early in winter, it is necessary to sow seeds of them in heat early in March, and to transplant in either May or June, according to the weather. For this purpose seed may either be sown in small pots and placed in a warm house, or sown in drills 4 or 5 in. apart, in a gentle hot-bed. Sowing in pots is, however, considered to be the best, inasmuch as the plants can be more easily removed when required to be hardened off, and they are not so liable to a check when transplanted as when lifted out of a bed. The best-sized pots for the purpose are 4-in. ones, in each of which should be sown four or five seeds, thinning out the plants as they advance in growth, and finally leaving only the strongest one. They should be placed close to the glass, where they will get plenty of light and air to keep them strong and stubby, gradually hardening them off early in May; and towards the end of the month they may be transferred to the trenches in which they are to grow, if the weather be favourable, planting them from 2½ to 3 ft. apart in the row. It is not well to sow too early, as the plants become pot-bound before they can be planted out, and consequently checked in growth. A second sowing may be made in May in open trenches, and the main sowing early in June. The trenches should measure at least 4 ft. from centre to centre, and be dug 2 ft. wide and 18 in. deep. Into the bottom of these should be placed 2 or 3 in. of good rotten manure, which should be dug in with a fork, and well incorporated with the soil in the bottom of the trench. The seeds should then be sown in patches from 2½ to 3 ft. apart, and slightly covered with fine soil well watered, and flower-pots should be placed over them until the plants are up, when they may be removed and the weakest plants thinned out, eventually allowing only the strongest to remain. The subsequent treatment consists in keeping them well supplied with water at the roots until the end of September, when they will have nearly completed their growth, and when they will require moulding up. Those planted earlier will, however, be ready before that time, and should be earthed up as early as possible —the aim in this case generally being earliness rather than large heads.

Tying and Earthing up.—Choose a fine day, when the foliage of the plants and the soil are dry.

The leaves should be carefully brought to an upright position, and then placed neatly together and tied with broad pieces of matting. A good armful of dry hay or straw should then be placed round the base of each plant, and secured by strong haybands being wound round it, gradually narrowing to the top, leaving only the tips of the leaves bare. This done, the soil between the trenches should be turned over and well broken with the spade, and afterwards placed equally and firmly round the plants, forming an even ridge by beating the sides with the back of the spade. The plants will be well blanched and fit for use four or five weeks after earthing. Blanching may also be done by placing a drainpipe over the plants, after tying the leaves closely together, the apertures between the plants and pipes being filled with sand. This plan, though a good one, is too expensive where many plants are grown. Many lift their Cardoons on the appearance of severe weather, and place them in dry cellars or sheds from which frost is excluded. This is really unnecessary so far as the plants are concerned, as they can be effectively protected by placing litter, etc., along the ridges; but there is one advantage in lifting them, and that is, they may be got at easily in hard weather, whereas those left out-of-doors sometimes cannot be dug out without much labour.

USES.—The blanched stalks or ribs of the inner leaves are chiefly used as a winter vegetable, as well as the main root, which is thick, fleshy, tender, and of an agreeable flavour. Cooked in a delicate way, it is excellent; the degree of tenderness to which it is boiled should be studied, and the sauce should not be rank with salt and spice.

Prickly Tours Cardoon.—This is one of the smaller varieties, and has very thick and solid stalks or ribs. On the other hand, it is the most spiny kind of all, which, however, does not prevent it from holding the first place in the estimation of the market-gardeners of Tours and Paris.

Ivory-white Cardoon.—Smaller and much less spiny than the Tours Cardoon, it has numerous very fleshy ribs of fine

Prickly Tours Cardoon ($\frac{1}{15}$ natural size).

quality and very tender; remarkable also for their very pale yellow colour and the facility with which they can be blanched.

Smooth Solid Cardoon.—This variety, which is almost spineless, is rather larger than the preceding, has longer leaves and ribs, and grows from about 4 to 4¼ ft. high. The ribs are always broader than those of the Prickly Tours Cardoon, but not so thick, yet they become hollow sooner, if the plant is allowed to suffer ever so little from drought or want of nourishment. The leaves are neither quite so much cut nor quite so whitish in hue as those of the Prickly Tours variety.

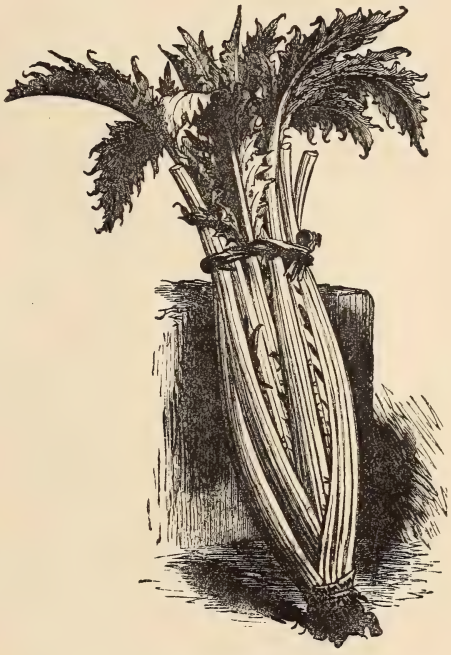
Ivory-white Cardoon.

Long Spanish Cardoon.—A large variety, which is chiefly grown in the south of Europe, with large, broad-ribbed leaves. It is not spiny, but the ribs are not so solid as those of the preceding varieties.

Artichoke-leaved Cardoon (*Cardon Puvis*).—A very distinct spineless variety. Leaves very broad and large, not much cut, and dark green. It is a vigorous plant, with broad ribs, usually half-solid, and is chiefly grown about Lyons, where it attains about the same height as the Smooth Solid Cardoon, but is broader in all its parts.

In some varieties the lower part of the leaf is more or less coloured with purple or red; such as the Red-stemmed and the

Smooth Solid Cardoon ($\frac{1}{15}$ natural size).



Artichoke-leaved Cardoon.

Purple Cardoon, but they have now gone out of cultivation, their ribs generally being wanting in firmness, and their red or purple colour being against them.

CARROT

Daucus Carota, L. *Umbelliferæ*

French, Carotte. *German*, Möhre, Gelbrübe. *Dutch*, Wortel. *Italian*, Carota. *Spanish*, Zanahoria. *Portuguese*, Cenoura.

Native of Europe.—Biennial.—The root of this plant, when artificially developed by cultivation, exhibits the widest differences in shape, size, and colour. The leaves are very much divided, and twice or thrice pinnate, the divisions being deeply cut and pointed. The flowers, produced in umbels, are small, white, crowded together, and with long linear bracts, and are borne on the top of a stem

from 2 to 5 ft. high, and do not appear until the year after the seed is sown. The seeds are small, green or gray-brown, slightly convex on one side and flat on the other, channelled, and set with recurved points or bristles on two of the ridges; they have a very strong, peculiar, aromatic odour. Their germinating power lasts for five years.

CULTURE.—The cultivation of the Carrot is most simple. The seed is sown in the open ground, where the crop is to be grown, from February to autumn. The soil should be well prepared by being manured, if possible, six months at least beforehand, and deeply dug for the long-rooted varieties. As soon as the plants appear, hoe, and continue to hoe as long as the crop remains in the ground. This operation will be found all the easier if the plants are sown in drills. The seedlings are thinned out two or three times, leaving them more or less far apart according to the size of the kind grown. The short and very early varieties are most usually sown broadcast, either in the open air or under a frame. A first thinning-out is made while the plants are young, and afterwards the removal of such as have grown large enough for eating gradually makes room for the slower-growing ones that are left. By making successional sowings, crops of Carrots may be obtained from April to June on hot-beds, and from July to November in the open ground. In November the plants should be pulled up and stored for winter use in a dry, sheltered place. Sometimes they are left in the ground, covered with straw, leaves, or earth, and dug up as they are required for the table. Plants sown late in the open ground, and protected in severe weather by a covering of some kind, will sometimes get through the winter, and yield an early crop in the ensuing spring.

Carrots require a good, light, warm soil, well trenched, and which has been previously well manured. Sowing must be done in dry weather; for, should a shower happen soon after the seed is in the ground, the crop will, in most cases, be a failure, if not sown again immediately. Drills ought to be preferred to broadcast sowing. On account of its numerous bristles, Carrot-seed is somewhat difficult to sow with regularity; therefore it is mixed with sand or dry soil. This difficulty is obviated now by buying cleaned seed from seedsmen. Laying the seed in wet sand or wet loam a few days before sowing, in order to stimulate germination, was once much practised; but this method is now seldom employed. It may, however, do under some circumstances; for instance, in forcing and sowing in the open ground, where drought is feared.

FORCING.—The French Forcing and the Scarlet Horn Carrots are best for the purpose, but the former is to be preferred. Prepare mild hot-beds 2½ ft. high in November or December and 1½ or 2 ft. in January or February; put on the frames, cover the bed with 5 or 6 in. of rich soil or mould, and, as soon as the whole is sufficiently heated, sow the seed broadcast, cover with ½ in.

of mould, smooth the surface, and cover the glass with mats until the seed comes up. Should the interior get dry, give a slight watering, but be careful of damp. When the plants have four or five leaves, thin them ½ in. apart; admit air as often as the temperature will allow it, which will give strength to the seedlings. Take care the heat does not exceed 60° during the day and 50° at night, which may be easily regulated by tilting the glass. In the case of sharp frost, covering with mats is preferable to artificial heat. Shading, if needed, must not be omitted. Sowing in November, if carried on practically, will produce fine young Carrots at the end of February, which will last through March and April. Subsequent sowings—in December for March to April, in January for April to May, and, lastly, in February for April to June—must be attended to as required by market-gardeners; but, in private gardens, the first bed should be made in November and the second in January; these will afford an ample supply until new open-ground Carrots are fit for use. Where frames are not available, prepare, at the beginning of February, in some warm corner, a bed of hot manure mixed with leaves, covered with 4 or 5 in. of mould; sow the seed and protect with mats supported by sticks or other apparatus. As soon as the seed comes up, remove the covering every day as frequently as the weather will permit, and the crop will be ready from the end of April to the end of May.

Early and Main Crops.—For the first outdoor crop the seed should be sown in February, on a warm, dry border, in 5 in. drills; cover the seed with ½ in. of fine mould; when the young plants have formed a few leaves, thin them to 1 or 2 in. apart, hoeing and watering as required. The crop should be ready by the end of May, and will last until the general crop comes in. The best variety for this purpose is the Scarlet Horn. In June sow the same kind of Carrot again, if small roots be preferred. Intermediate Scarlet and Intermediate Nantes are the best varieties for general crops. Sow from March to May (the latter month for winter Carrots), in well-prepared soil, in 9 to 12 in. drills, ½ in. deep. As the Carrots make their appearance, hoeing, weeding, watering, and thinning them to ½ in. apart should be duly attended to. As soon as the plants attain the size of a lead pencil, thin them to 3 or 4 in. apart without hesitation. Thinning generally receives too little attention in every country; and the Carrots, crowded when young, are left to be taken up for use when they have attained sufficient size. In most cases the ground gets dry and hard, and thus prevents the lifting of the roots, which are then left until the autumn, when only small, useless Carrots are the result.

Autumn Sowing.—In August and September, select a warm border. Sow French Forcing or Scarlet Horn Carrot, as for the early crop. The roots must remain in the ground the whole winter; but if well protected and the bed covered with 1 in. of mould, healthy little Carrots will be ready from February until May.

Storing.—In October, before the frosts occur, and on a fine day, take up the crop, cut the leaves ½ in. from the top, clear the roots from soil, and store them at once in a cold shed or cellar; there arrange them in tiers, spreading between each a layer of sand or dry soil, up to the height of 3 ft., the length being determined by the quantity fo roots; two boards will secure the

ends of the pile. By this means the roots can be easily and often examined, and those that are decayed removed. On the first symptoms of vegetation appearing, pull down the pile and build it again, and this method will enable the Carrots to be kept in a good state as late as possible. *Another method.*—In open ground, in a dry place, remove the soil to the depth of 1 ft., trench the bottom, adding some sand if possible; plant the roots vertically close to each other, and protect from frost and from wet. The objection to this plan is, that decay cannot be attentively watched, and vegetation is much more liable to be excited, to prevent which the roots must be lifted and again buried. Heaps should be avoided in the case of garden varieties.

Diseases and Insects.—The Carrot is a prey to many enemies. Perhaps the worst to be feared is the rust, and this occurs generally from the roots being grown in wet soil, or having suffered from dryness in summer. Too much fresh manure will also provoke it. There is no effective remedy for it, but salt and quicklime applied to the ground before sowing is an excellent preventive as well as a fertiliser. At spring-time, in hot-beds or borders, the young plants of the first sowings are sometimes entirely destroyed by a small spider. Gardeners watching young Carrots are surprised the next day to see that every plant has disappeared. Soot spread over the drills, or the entire bed, will effectually prevent such a disaster. Snails and slugs are very fond of young Carrots, one snail or slug being able to destroy a small bed in a single night. Quicklime spread over the young plants (which it does not injure), and around the beds, will secure the crops, for one application effectually destroys these marauders.—D. G.

The Carrot-louse attacks the young plants almost as soon as they appear, often doing much damage, like the Turnip-fly, if growth be retarded at the beginning. Then the Carrot-grub is even more destructive, boring into the roots, and often ruining a crop. Wireworm, millepeds, and several other enemies sometimes do much mischief.

Early Carrots are largely supplied for the London market from France: they are tender and delicious, and often far better than those obtained from the London market-gardens. Seed of early varieties is sown from February to March, after which the main crop is put in, and the plants are not thinned out quite so much as other root-crops. The Early Horn is the kind used for early sowings; and, when in good condition, they sell well in the market. In our market-gardens the Long Surrey and Long Orange are the chief kinds grown for main crops, and roots of these are furnished by hundreds of tons all through the winter months. Some market growers force the Early Horn on hot-beds and in frames, in order to have them ready for use in March or April, and these realise good returns. Some also sow beds in a warm position in August and September for winter use. If the weather is mild, fine little roots are obtained, and they sell readily at good prices.

Uses.—The roots are well known and largely used, both as a table vegetable and as forming excellent food for cattle. The seed is employed in the manufacture of some kinds of liqueurs, and the juice of the Red varieties is used for colouring butter.

Parisian Forcing Carrot.—The earliest and the shortest of all Carrots. It is a special strain selected from the French Forcing Carrot with a view to its cultivation in rotted manure-mould under glass, which is the only way to cultivate it; is often broader than long, is smooth, very clean, with a fine neck. The leaves are light and thin, the skin smooth, and the colour rather lighter than that of the French Forcing Carrot.

Parisian Forcing Carrot.

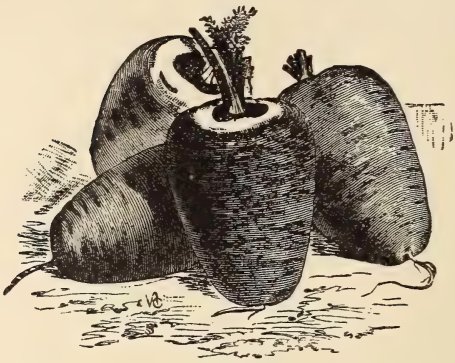
French Horn, or Earliest Short Horn, Carrot.—Root almost globe, or slightly top-shaped, of a half-transparent orange-red colour, paler towards the point; neck very fine and very short; leaves very few. This variety, which is generally pulled when it has only four or five leaves, is used in open-air culture for very early or very late sowings, but is especially suitable for forcing under a frame, both on account of its earliness and the shortness of its root.

Dutch Horn Carrot.

The forcing of the Carrot demands no particular care, except that of pressing the soil down well after sowing the seed, and giving the plants as much air as possible while they are growing.

Early Scarlet Dutch Horn Carrot.—Root nearly twice as long as broad, thicker at the neck than at the tip, which is generally blunt; neck fine; leaves very few, yet not so few as those of the preceding kind. This is an excellent Carrot for open-air culture, and, in certain cases, may be found suitable for forcing. Both it and the preceding kind are most usually pulled for table use while they are young, and before they have attained their full size—a practice which might well be carried out with regard to all Carrots for the table.

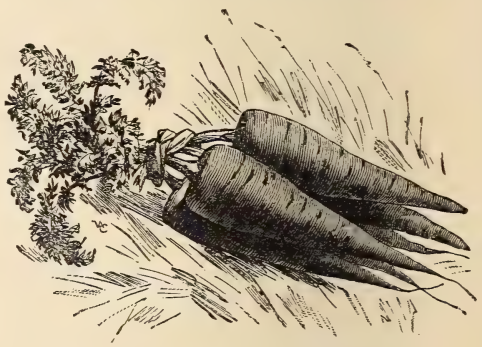
Blunt-rooted Guérande, or **Ox-heart, Carrot.**—A very distinct variety, remarkable for great size and quickness of growth. It might be described as an enormous Dutch Horn Carrot, for often its length does not much exceed its thickness, which measures sometimes 3¼ in. in diameter. The flesh is very tender and delicate, and a beautiful orange-red, paler at the centre; not, like the Nantes Carrot, a coreless variety. The foliage is light and rather scant. It is an excellent kitchen Carrot, but requires a light, substantial, well-dunged soil and moisture. Well grown, it is one of the best Carrots for the table.



Blunt-rooted Guérande Carrot.

English Horn, or **Early Half-long Scarlet, Carrot.**—Root spindle-shaped, two and a half or three times as long as broad; neck often tinged with green or brown, level with the surface of the soil, and slightly hollowed out around the base of the leaf-stalks; leaves somewhat stouter than those of the preceding kind. A good, productive, and pretty early variety, grown on a large scale in many localities for market supply.

James's Intermediate Carrot.—This variety is evidently an improved form of the Half-long Scarlet Carrot, but as it has now been a good while in very general cultivation, it has undergone a considerable amount of modification, in consequence of which it exhibits at the present day numerous diversities of character in different districts. In a general way it may be described as a handsome Half-long Carrot, with a long, pointed, well-coloured root, vigorous and rapid in growth, and having a stoutish neck, as might be expected from a variety which is as much grown in fields as in gardens. It is very productive, and much in request for field culture.



English Horn, or Half-long Scarlet, Carrot.

There is a green-necked sub-variety of it, but the root of the true James's Intermediate is entirely red. It is the most extensively cultivated Half-long Carrot in England, both in fields and gardens, but in many cases some of the Continental kinds might be advantageously grown instead of it.

James's Intermediate Carrot.

Half-long Blunt Scarlet Carrot.—This may be considered as a variety of the Pointed kind. The root is not so slender, and ends in a blunt cone, but there is no apparent difference in the leaves or in any other respect. The Blunt-rooted variety is to be preferred for kitchen-garden culture. It may be regarded as the form from which have been derived in succession the Early Scarlet Horn and the French Forcing (or French Horn) Carrot, both of which, like the present variety, are characterised by the blunt, rounded end of the root, the fineness of the neck, and the paucity of leaves. There seems to be a sort of reciprocal dependence and an intimate correlation between the blunt form of the end of the root and the fineness of the neck in the Carrot tribe. Those varieties which have few leaves and a very short and very fine neck have almost invariably a blunt-ended root, and *vice versa*. Great earliness also is generally found to accompany these physical characteristics.

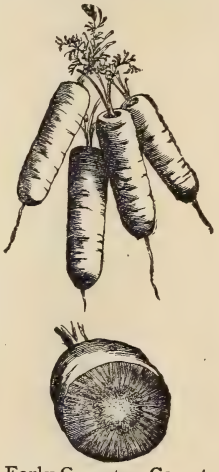
Half-long Blunt Scarlet Carrot.

Early Nantes Carrot.—Root almost perfectly cylindrical, not wide at the neck, and with a blunt, round point; skin very smooth; neck fine, hollowed out around the base of the leaf-stalks; leaves not very large; flesh entirely red, very sweet and mild, and almost devoid of the broad yellow heart or core which is seen in most of the other kinds of Red Carrots. Although this variety only recently began to be distributed, it has already

become one of the most generally cultivated of all the kitchen-garden varieties of Carrots, and indeed, by a remarkable combination of good qualities, it justifies the preference which is given to it. It excels all the other kinds of Half-long Carrots in earliness, without being inferior to them in productiveness. Its roots, which are very clean-skinned and even in shape, are easily pulled, and keep well; and, lastly, its somewhat deeper colour and freedom from heart or core cause it to be preferred to all the other kinds for table use. For all these reasons the Early Nantes Carrot deserves to be very generally grown; but it requires a certain amount of care, for, like all improved and early varieties, it suffers more than the ordinary coarser kinds from want of nourishment and watering. It only attains its full quality in a mellow, deep soil which has been previously well enriched with vegetable mould, compost, or manure, and which is sufficiently substantial and kept moist by frequent waterings. The roots are more regular in shape and smoother in skin in proportion as the soil is soft and free from stones and gravel. Any attention given to the cultivation of this Carrot will be amply repaid by a more abundant crop, and especially by the finer appearance and improved quality of the roots.

Early Half-long Scarlet Nantes Carrot.

In the neighbourhood of Nantes another Half-long variety of Carrot is grown, which has a very blunt-pointed root, sometimes broader at the end than at the neck, like the Jersey Navet Turnip. This variety is larger than the Nantes Carrot which we have just described, and also differs from it in having a very large yellow heart or core.



Early Carentan Carrot ($\frac{1}{3}$ natural size).

Early Carentan Carrot.—A very distinct, slender, almost cylindrical variety, with a very fine neck, and very small and few leaves; skin glossy, smooth; flesh red, without any heart or core. This variety can be sown pretty thick, and is consequently very well adapted for frame culture. It does best when grown in very rich soil or compost. Being a fancy

kind, it is not suitable for cultivation on a large scale, but it is one of the varieties known for perfection of shape and fineness of quality.

Luc Half-long Carrot.—Root rather broad at the neck and a little longer than that of the preceding kinds; the lower end is usually more blunt than pointed, although the whole root narrows gradually from the neck to the lower extremity. This is an early and productive variety, and is suitable for spring culture in the open ground. It is not entirely free from heart or core, although the differences between the central and the exterior layers of the

Luc Half-long Carrot.

Chantenay Half-long Carrot.

flesh are not so clearly defined in it as they are in many other varieties.

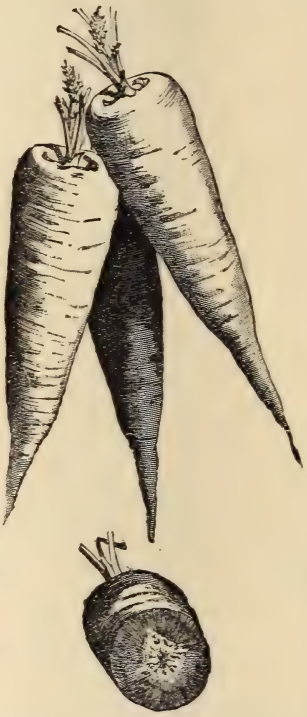
Chantenay Half-long Carrot.—Although belonging distinctly to the class of the Half-long Stump-rooted Carrots, this variety differs from all the others by its large volume and by being completely rounded at the end; in fact, it is a Guérande Carrot of considerably longer size. It resembles the Luc Carrot, but is larger, thicker, more rounded, and a darker red. As with the Guérande Carrot, the inner part of the root is a little lighter than the outer. It is delicate in flavour, juicy, and sweet.

Half-long Danvers Orange Carrot.—It is difficult to give a precise description of this variety of Half-long Carrot, which comes to us from the United States of North America. For several years

we have been comparing this Carrot with the European sorts, and we have seen it varying considerably in its characteristics. We refer to trials made with seeds imported from America every season. At first it was a Half-long Pointed Carrot, of medium thickness, more pale orange than red, much like that of the Pale Red Flanders Carrot. It is still a slender half-long root, but well coloured, and with a blunt end very like our Luc Carrot. The leaves are rather short, finely cut, and rather bronzy.

St. Valery Carrot.—A large handsome variety, the connecting-link between Half-long and Long varieties of Red Carrot. The root, which is very straight, very smooth, and bright red, is very broad at the neck, where it is frequently 2 to 3 in. in diameter, so that the entire length, which may be 10 to 12 in., is only about four times the diameter, which would almost bring it into the category of the Half-long varieties. It is suitable for field culture, but does best in light, rich, well-dug soil. The leaves are remarkably slight for the size of the root. This fine variety was for a long time grown only in its native locality, but since it became better known it has grown in favour ; for, with a handsome appearance and good quality, it is a good kitchen-garden as well as a good field Carrot, combining great productiveness with a fine regular shape and thick, sweet, tender flesh.

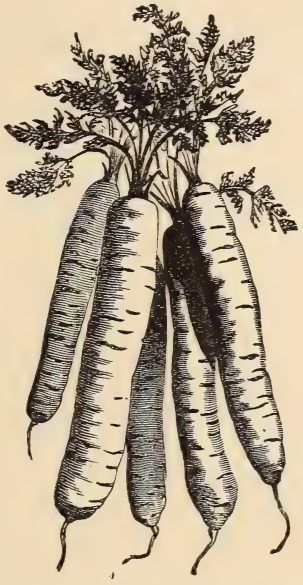
Half-long Danvers Carrot.



St. Valery Carrot ($\frac{1}{3}$ natural size).

Long Surrey, or Long Red, Carrot.—Root long, narrowing gradually to the lower extremity, five or six times as long as broad, not unusually 1 ft. to 14 in. in length ; neck broad, flat, or slightly hollowed out around the base of the leaf-stalks ; leaves stout and numerous. This variety, which often attains a considerable weight, is very much used, both for field and market-garden culture. It requires a rather deep soil, but in return yields a very remunerative crop. By protecting the plants with a covering of straw or leaves,

Long Red Carrot.



Coreless Long Red Carrot (⅛ natural size).

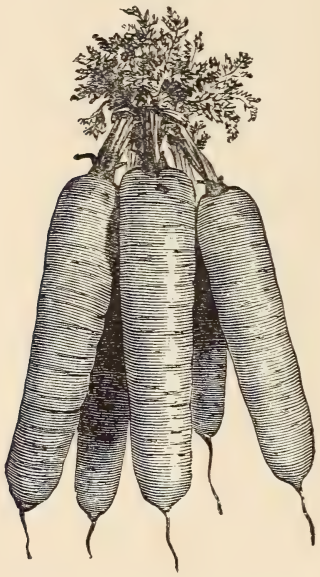
they may be left in the ground for a long time in winter, and taken up as they are wanted for table use.

Coreless Long Red Carrot.—This Carrot rather resembles the Early Nantes variety, but is very strikingly longer, and consequently more productive. It is almost cylindrical in shape, blunt-rooted, very fine in colour, very melting, sweet, and fine in flavour. This is especially an early small-leaved kitchen-garden variety.

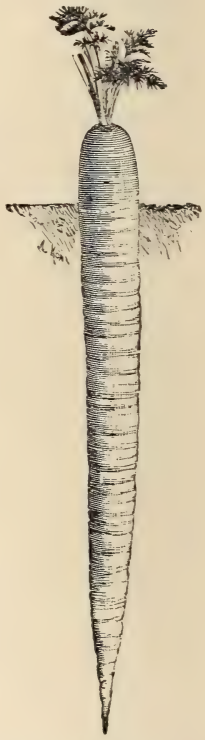
Red Long Smooth Meaux Carrot.—A fine strain of kitchen-garden Carrot ; it is cylindrical in shape, smooth, thicker than the Coreless Carrot, and not ring-marked. A very good variety for market-gardeners. It requires a deep, mellow, moist, and rich soil. In having a core, it differs also from the preceding variety, which it resembles in other ways. Like most of the highly improved

stump-rooted varieties, the Meaux Carrot has a very light and scant foliage.

Altringham Carrot.—This variety, which is of English origin, has been for a long time known and valued in France. It is a very long, slender kind, with the flesh entirely red (like that of the Coreless varieties) and of excellent quality. The neck, instead of being flattened, or even hollowed, as in many other kinds, is raised in the form of an obtuse cone. The root is usually of a bronzy or violet colour on the over-ground portion, which is from 1 to 2 in. in length. The length of the whole root is often 20 in. or more,



Red Long Smooth Meaux Carrot.



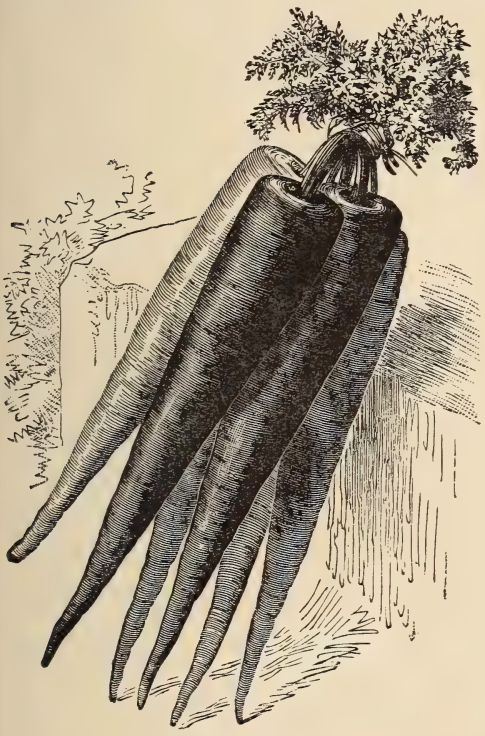
Altringham Carrot (⅓ natural size).

and its diameter is relatively small, the length being equal to eight or ten times the diameter. Its surface exhibits a series of alternate ridges and depressions, having the appearance of being tightly bound around with a thin cord. This Carrot requires a rich and deeply dug soil, and, from its peculiar shape, it is liable to be broken when pulled. For these two reasons it is not so generally cultivated as it deserves to be on account of its good quality and great productiveness.

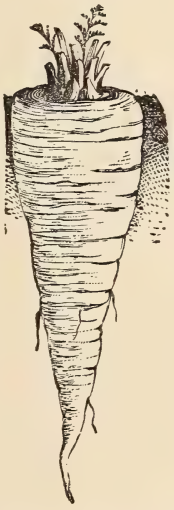
Of late years the English growers have considerably altered the characteristics of their Altringham Carrot, and the old form is now

difficult to find in the trade. The new form is much thicker, shorter, and smoother. This is an improvement, as it makes the lifting of the roots much easier.

Long Blood-red Carrot.—Root long, thin, shapely, dark red. The top scarcely seen above the ground. The flesh is tender and dark orange-red. The leaves are light, small, and the stalks are usually tinged with purple. The Blood-red Carrot is a half-late variety, specially suited for autumn use. Given care, it keeps in condition through the winter. This variety is remarkable for the intensity of its colour, which forms one of its principal merits. The skin itself becomes almost purple with exposure to light for any length of time.



Long Blood-red Carrot.



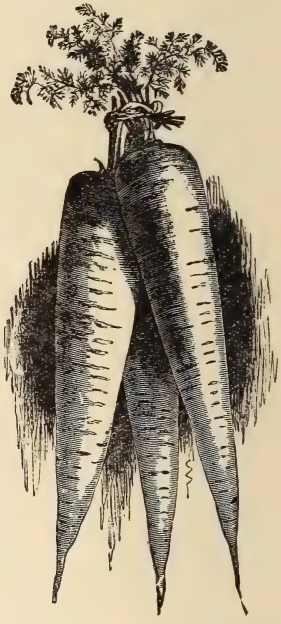
Flanders, or Sandwich, Carrot ($\frac{1}{5}$ natural size).

Flanders, or **Sandwich, Carrot.**—A kind of Half-long Red Carrot, much used in field culture on account of its great productiveness. Leaves abundant; neck flat and broad; root almost entirely sunk in the soil, rather bright orange-red, and regularly narrowed from neck to point. It is only about three times as long as broad, the entire length being about 8 in., with a diameter of between 2 and $2\frac{1}{2}$ in. at the neck. The chief merit of this variety

is that it is large, productive, early to form, and keeps well. Formerly quantities of it were sent to the Paris market from Flanders in waggons at the close of winter, when the Scarlet Horn and the Long Red Carrots were beginning to grow scarce. It is now less frequently seen there since the Parisian cultivators discovered that by successional sowings fresh Carrots can be raised at all seasons.

Orange Belgian, or **Long Orange Green-top, Carrot.**—This very hardy and productive kind is more generally grown in the

Orange Belgian, or Long Orange Green-top, Carrot (⅛ natural size).



Long Lemon Carrot.

fields than in the kitchen-garden. The root is at least six times as long as broad, pale orange on the underground portion, and quite green above-ground, or for about one-fourth of its entire length; hence it is indifferently termed the Green-top Red, or Green-top Yellow, Carrot. It keeps well, and is considered to be very nutritious.

Long Lemon Carrot.—Root rather slender, four or five times as long as broad, almost entirely sunk in the ground, and bright yellow, except at the neck, where it is slightly tinged with green.

It is extensively grown in the fields in the north-west of France, but is not without merit as a kitchen-garden plant, especially when young, as when it has advanced in growth it sometimes becomes hard and almost woody at the heart. The flesh is yellow. When it is desired to be used in winter without becoming hard, it should be sown rather late—about the end of May or the first days in June. This is one of the oldest French varieties of Carrot. We find it described in old horticultural works before there was any mention made in them of the Red or Orange varieties. In the present day these are most generally preferred; and the place which the Lemon Carrot formerly occupied in cultivation for market supply is now filled by the Common Long Red Carrot, which, in its turn, is being largely superseded by the St. Valery Long Red variety.

Short Lemon Carrot.—Root scarcely twice or thrice as long as broad, conical in shape, and sunk in the ground; neck flat and wide; rather pale yellow throughout.

Long Yellow Stump-rooted Carrot.

Yellow Intermediate, or **Long Yellow Stump-rooted, Carrot.**—The root is almost cylindrical, and very blunt at the end; the flesh and skin a true yellow. It is a good Carrot grown on a large scale for cattle-feeding, and is also an excellent kitchen-garden Carrot, despite its light colour. It is very productive, and although very sweet, it keeps well during the winter.

Improved Wild Carrots.—About the year 1830 M. Vilmorin, sen., commenced several cultural experiments with the view of obtaining from the Wild Carrot enlarged and edible roots similar to those of the cultivated varieties. In the course of a few years, his sowings yielded him a certain proportion of plants with fleshy roots of various colours. Some of these forms remained constant for several years, reproducing themselves from seed with great regularity. The most remarkable of them were the Improved

White Wild Carrot, which was rather like the Breteuil White Carrot, and had a fine flavour and odour, but was deficient in sweetness; and the Improved Red Verrières Wild Carrot, which was not productive, but was very regular in shape, with a very fine neck and remarkably slight leaves. These varieties, however, after having been grown for some time as a scientific curiosity, did not come into general cultivation, and were eventually discarded.

Amongst the varieties which do not come under any of the strains which have just been described, we may mention the following:—**Bardowick Carrot.**—A fine variety of Long Red Carrot, almost free from core, and somewhat resembling the Altringham Carrot. The Dutch variety named *De Duwick* is a rather shorter kind than the Half-long Red varieties, yet bears no analogy to the Early Scarlet Horn. It is a pretty good kind for field culture, but the Blunt-pointed Half-long varieties are much better. The **Long Orange Carrot** is a variety grown in the United States of America, of a lighter colour, greater length, and with a broader neck than the Common Long Red Carrot.

The English varieties *Matchless Scarlet* and *Scarlet Perfection* come very near the St. Valery Carrot. They are, however, a little thinner and more elongated.

There are several varieties of large white Carrots which we need not describe, as they are grown exclusively for cattle-feeding.

CAULIFLOWER

Brassica oleracea Botrytis, D.C.

French, Chou-fleur. *German*, Blumenkohl, Carviol. *Flemish* and *Dutch*, Bloemkool. *Italian*, Cavolfiore. *Spanish*, Coliflor. *Portuguese*, Couve-flor.

In the different varieties of Cabbage known as Cauliflowers, it is the floral organs, or, more properly speaking, the flower-stems, which have been artificially modified in size and appearance in the course of cultivation. The flowers themselves have, for the most part, been rendered abortive, and the branchlets along which they grow, gaining in thickness what they lose in length, form a sort of regular corymb with a white fleece-like surface, which is rarely broken by a few small leaves growing through it. These floral branchlets, having become large, white, thick, and very tender, produce nothing but a homogeneous mass, so to say, and the rudiments of the flowers are only represented by the minute and almost imperceptible prominences which are found on the upper surface of what is termed the "head" of the Cauliflower.

CULTURE.—It may be said that the cultivation of the Cauliflower is one of the most simple processes, and, at the same time, one of the most difficult to carry out well. In fact, with the

exception of the spring Cauliflowers, which are sown in autumn and wintered under frames, it is grown as an annual, which is sown in the spring in the open ground, and yields a crop in the course of the same year, without requiring any attention whatever except frequent waterings. But, on the other hand, it is certain that, in order to obtain a fine crop, the cultivation of the Cauliflower requires a certain amount of skill and tact which no mere cultural directions can supply. The "head" will not be regularly formed unless the growth of the plant proceeds rapidly and without any check from beginning to end, and the greatest watchfulness and most assiduous care sometimes fail to ensure this.

At Paris there are three principal seasons or successional periods for growing Cauliflowers. In the first, the seed is sown in autumn, and the crop comes in in spring. In the second, the seed is sown late in autumn or in winter, the crop, in this case, not coming in until the following summer. In the third, the seed is sown in spring, and the crop is gathered in the autumn of the same year. Those which are sown in autumn, for the spring crop, are sown either in the open ground, or (most usually) on a hot-bed, in September. In the course of the autumn, the seedlings are pricked out under a cold frame, or in the open ground in a border with a warm aspect, where they are protected with *cloches* or bell-glasses. In January or February they are transplanted to a hot-bed, six plants to each light. The heads obtained in this way are the first that appear in the market in May. Almost at the same time that the plants are removed to the hot-bed, other plants are placed in cold frames; the crop from these is naturally later, and comes in in succession to that which was obtained from the hot-bed.

The Cauliflowers of the second season are sown in the beginning of January, in a hot-bed; the plants are pricked out into another hot-bed, and are not transferred to the open ground until they are pretty strong, about the end of March or the beginning of April, at which time they have no further need of artificial heat; the crop from these comes in about the end of June or the beginning of July. Successional sowings are made in February and March, and the seedlings, reared under frames or bell-glasses, are planted out a little later than those which were sown in hot-beds. This second season, in which the plants are pushed forward by special treatment and artificial heat, produces by far the largest quantities of Cauliflowers that are sent to the Central Market at Paris.

Lastly, in the third season, the entire growth of the plant is effected, without the help of artificial heat, in the open ground. The seed is sown in May or June in a sheltered or shaded border, and the seedlings are planted out permanently in July, without having been previously pricked out. This method, which at first sight appears the simplest of all, does not always produce the best

results, owing to the difficulty of protecting the plants from excessive heat and drought in the early stages of their growth, and, later on, from early frosts, which often mar the formation of the heads.

In England this is a summer and autumn vegetable, and at that season fills the position occupied by the Broccoli in winter and spring. The most valuable crops are the early ones in spring and the late in autumn. In summer they are frequently unsatisfactory during hot weather, and when Peas and French Beans are plentiful, they are not so much in demand.

The first sowing is in a general way made about August 25th, the time being varied according to latitude, as experience may direct. In some places the first week in September may be early enough. Select an open situation where the land is in good condition from a previous manuring. If the weather is hot and the land very dry, stir the surface for a foot or so in depth with the fork, and give water enough to moisten it. Draw drills 9 in. apart, and sow the seeds (which should have been obtained from a good source) thinly. Cover with nets to keep off birds; and if the weather continue hot, shade a little by laying a few branches with the leaves attached over the net. As soon as the plants are up and are large enough to move safely (which will be early in November), prepare one or more frames by placing a layer of coal-ashes in the bottom, and on the ashes, which should be beaten down firmly with the back of the spade, place 5 in. of light rich soil. Into the bed so formed dibble the plants 3 in. apart, and give water to settle the soil round them. During the winter the frames should be fully ventilated when the weather is mild, keeping out cold rains. In times of severe frost, scatter a little dry litter or fern over the lights. Sometimes Cauliflower-plants pass through the winter safely pricked out at the foot of a south wall, or on the south side of a thick hedge, and sheltered in severe weather by placing evergreen branches among them. Another way of raising early plants, and an excellent one, is to sow in heat about January 1st, and treat the plants as we should treat tender annuals. The seeds are sown in pans covered lightly with sandy soil, and placed on a shelf in a house where the temperature is about 60° at night. When the young plants appear, they will occupy a position in the full light near the glass, and when large enough will be pricked off into 60-sized pots, one plant in each pot. The soil and the pots will be taken into the house to warm a little before the potting takes place. The plants will be grown on in the same temperature till March, when they will be well established; they should then be hardened off, and early in April planted out. This plan will not give more trouble than is taken every spring with the same number of bedding plants, and they do not bolt, as sometimes happens with the plants raised in August. Still another way of raising the first early Cauliflower-plants may be described as intermediate between the cool treatment first mentioned and the warm plan last described. About the middle of October sow the seeds in boxes and place in a frame which rests on, say, an exhausted Melon or Cucumber bed, and which still retains a little of the summer's

warmth. Keep close till the seeds germinate, then give air freely, and when the plants are large enough, pot off singly in small pots. Winter on a shelf in the lightest part of the greenhouse.

Planting under Hand-lights.—These are old-fashioned but excellent contrivances. About March, acting as all must according to the character of the weather, arrange the lights for the early crop in a warm, sunny, sheltered position, where the soil is deep and rich, 3 ft. apart each way, and plant four plants under each light. As the season advances, ventilation will be required, either by placing the lights on bricks, or, if the lights have movable tops, by altering their position. A few early Cauliflowers may generally be obtained by planting in front of a south wall, almost close to it, to take advantage of the sun's warmth, which accumulates there both on the soil and in the air. Such plants may be further assisted by a ridge of soil in front, and when the weather gets warm, later in the season, this ridge of soil will help to confine the soakings of liquid manure which good cultivators will obtain by hook or by crook for their early Cauliflowers.

Successional Sowings should be made in March in heat. A few seeds may be sown among any other young crops, such as Early Horn Carrots, as the Cauliflowers will be transplanted before any harm can be done. If it is not convenient to do this, sow the seed in a box, and place it where there is some artificial warmth, harden off, and plant out as seems necessary. The Autumn Giant should be sown in March for late summer and autumn use. This is a very valuable Cauliflower for hot seasons. It is very difficult with any other sort to secure close, firm hearts in August and September, but the cross of the Broccoli, that is so apparent, and which gives this kind its hardiness, almost makes it heat and drought proof—hence its great value, not only in the late autumn, but also through the season from August up till Christmas. Sow the Walcheren in April, and again in May and June for autumn. This, with the Autumn Giant, will furnish a supply till the winter Broccoli turn in. In some situations Cauliflowers are very uncertain; they must have plenty of rich manure. In such, to get them good, I have opened a trench 4 ft. wide all across a quarter, worked in plenty of manure, then drawn three drills at equal distances apart in the trench, and sown seeds of the Walcheren thinly. If it is necessary to sow in trenches, this is a better plan than having single rows, as the better soil and manure being in bulk will retain the moisture longer, and the plants will do better. When the seedlings are strong enough to transplant, single them out, leaving the strongest, and for this crop they may with advantage be much thicker than we should plant them generally. Small, white, close hearts are in the hot weather more useful than large ones, which nearly always develop a tendency to open. Some of the plants thinned out may be useful if planted under a north wall in rather deep drills. This is acting on the principle of never throwing a chance away. The crop in the trench had better be started about the first or second week in June, and if well attended to, and grown without a severe check, they will be sure to produce nice useful hearts at a very small expense. And it is worth something to feel that, under all circumstances, we may rely upon any particular crop turning out right.

Watering and Mulching.—Mulching with manure in hot summers is to this crop invaluable, and, except in extreme cases, will obviate the necessity for much watering, though, of course, a good soaking of liquid manure in a dry season will never come amiss. The three sowings in the open air in April, May, and June, with the previous sowings under glass, will, if planted out in the usual order when the plants are large enough, furnish a supply from June till Christmas, if need be; indeed, I have had both the Walcheren and the Autumn Giant till after Christmas in good condition in a cold pit. The distances between the rows, as well as the distance between the plants in the rows, will vary according to the situations and seasons, but 2 ft. between the rows, and 18 in. separating the plants from each other in the rows, may be taken as a good average distance.—E. H.

Culture in Market Gardens.—In London, it is hardly possible to overstock the market with this vegetable. It has the advantage over Broccoli in this particular, viz. that pickle merchants are always ready to buy up any quantity of Cauliflowers in summer, whilst for this purpose scarcely any Broccoli is used. In May, before Peas and Beans can be had at reasonable prices, good Cauliflowers realise good profits to the grower. Early Cauliflowers are usually grown under hand-lights, or are protected by old baskets or small boughs of evergreen trees. To provide plants for this purpose, a sowing is made on a well-sheltered piece of ground or a warm open quarter, in beds, in the second or third week of September. The young plants are allowed to remain in the seed-bed until the end of October, or even the middle of November. Should frosty weather set in whilst the plants are in the seed-beds, they are protected by mats supported on short stakes 18 in. above the ground. Sometimes a stout plank is set on edge along the centres of the beds, and two rows of short stakes are put one on either side to support it, and over this are placed mats. When the weather becomes too severe for them to be thus protected, and when they require to be transplanted, they are taken up and planted in frames or under hand-lights. The frames are placed in a sheltered spot sloping to the south, and are filled to within 8 or 9 in. of the top with ordinary soil firmly trampled down with the feet; over this better soil is sifted to a thickness of 3 or 4 in., and in this the Cauliflowers are planted 3 in. or so apart. In this position they remain until the February following or early part of March without any further care beyond that of closing the sashes to exclude frosts, cold winds, hail, or rain, and tilting them up at front and back during favourable weather, and on very fine days drawing them off entirely. Cold rains are very injurious to Cauliflowers, but a warm shower in February benefits them. Sometimes the plants grow so strongly that their leaves touch or press against the sashes; when that happens, the sashes are tilted up at front and back, night and day, with pieces of wood or brick, otherwise frost would injure such leaves as touch the glass. Dry sand, kept in a shed for the purpose, is scattered amongst the plants two or three times while they are in frames, in order to guard against damp, and such plants as show signs of "buttoning" are immediately pulled out to give the others more room. Where room is limited and the weather appears

mild, young Cauliflowers are often wintered in the beds where they are sown, or they are pricked off into raised beds of light soil not likely to be soaked with wet in winter. Here they are sometimes left unprotected, and at other times they are covered with hoops and mats. Continued dampness of soil and atmosphere is their worst enemy, as it induces growth so soft that it cannot withstand frost so well as that produced on high and dry ground. Where hand-lights are employed, an open field or quarter is lined off into squares measuring about 6 ft. each way. At every intersection nine Cauliflowers are planted in a sufficiently small space to be conveniently covered with *cloches* or hand-lights, which are immediately placed over them, and a little earth is drawn around the base of the lights so as to shut up all apertures. The empty spaces between the rows of hand-lights are planted with Coleworts. In spring these Coleworts are either thinned out or entirely removed for market, and a crop of Cos Lettuces is planted in their place. As soon as the Cauliflowers have become established they are allowed abundance of air, and otherwise treated the same as those grown in frames. When the plants become too thick, they are all lifted from under the hand-lights and planted in open quarters or under other hand-lights.

Market-gardeners generally begin to cut from Cauliflower-plants raised in this way some time in the month of May, according to the mildness or otherwise of the season. The best growers seldom make many sowings of Cauliflowers; one or two in autumn and one or two in spring being the usual number. The first autumn sowing, as before stated, is made out-of-doors some time between the last week in August and the third week in September; and the second one, in frames, in the last week of September or first week in October. From these two sowings Cauliflowers are obtained from the last week in April to the end of June. The first spring sowing, if the autumn one is a failure, is made in a frame in the last week of February or first week of March, or it may be made in the open border any time during the first fortnight of March; from this sowing a crop is obtained from the middle of June till August or September. The third sowing is commonly made in beds, in some open quarter, between the middle of April and the first week in May, in order to furnish an autumn supply. Different market-gardeners have different times for sowing Cauliflowers, but it is well understood that strong, grossly grown plants do not stand the winter so well as medium-sized ones, and they are also more liable to "button." Moderate-sized plants are decidedly the best for mild winters, but in the event of very severe winters occurring, strong plants are the best. Cauliflowers which have been wintered in frames or under hand-lights are often planted on ground cropped with Radishes before the latter crop is marketable, and by the time it is so and has been cleared off, the Cauliflowers will have gained good strength, when the ground will be intercropped with Lettuces. In other instances, fields are marked off into beds 5 ft. wide, with 1-ft. alleys between them, and these beds are sown with Round-leaved Spinach. As soon as this is done, three rows of Cauliflowers are planted along the beds. The Cauliflowers outgrow the Spinach, which, by continual picking for market, is kept in check until it is eventually exhausted, leaving the Cauliflowers

masters of the field. The autumn crops obtained from spring sowings are thinned out a little in the seed-beds, and, when large enough for handling, are planted where they are to remain permanently. Should the weather be dry at planting time, a pint of water, or a little more, is given to each plant, and the sodden soil is soon afterwards freshened up by the hoe, thus, in some measure, preventing evaporation. Late Cauliflowers are nearly always intercropped with some other vegetable, such as Lettuces, French Beans, Celery, Seakale, etc. Some large growers, however, depart from this rule, and save much labour; for, if intercropping be practised, people must be employed to keep down weeds by means of the hoe; but when Cauliflowers alone occupy the ground, horse-hoes can be freely worked among the rows. The Early London is the variety used for the first crops by most market-gardeners, but some use the Walcheren for that purpose. The Walcheren is the kind almost entirely grown for use after June, because it suffers less from drought than any other sort, and is not liable to "button." Snow's Winter White, an excellent sort, is, as a rule, regarded as a Broccoli; nevertheless, it has fine white, solid heads, and is largely grown to succeed the Walcheren, being hardier than that sort. Snow's White, if sown together with the Walcheren in April or May, makes a fine succession to it, and comes in usefully till January. Early Cauliflowers are always sent to market, but those produced in summer and autumn are disposed of to a large extent to pickle merchants.—S.

USES.—The head, boiled or pickled, is usually the only part which is eaten. The Cauliflower is one of the best liked of all vegetables.

Early Dwarf Erfurt Cauliflower.—A very early, very distinct, and really valuable variety, but difficult to keep true to name. It is somewhat under middle height, and has a rather short stem. Leaves oblong, entire, rounded, very slightly undulated, and a peculiar light gray-green, which, with their shape and rather erect position, gives the plant some resemblance to the Sugar-loaf Cabbage. The head is very white, but does not keep firm for a long time. When exposed to the sun, it soon takes a purple tinge, unless protected from direct strong light. The leaves, which at first have an upright position and cover the head, later on, as the head increases in size, sometimes spread and recline even to touching the ground.

Early Dwarf Erfurt Cauliflower.

Early Snowball Cauliflower.—This variety, a selection from

the last, differs from it in its greater earliness. It is well suited for forcing; and is, so far, the best Cauliflower we have for growing in frames. It is now largely grown for early crops in the south of France.

Alleaume Dwarf Cauliflower.

Alleaume Dwarf Cauliflower.—A dwarf and very early variety of the Half-early Paris Cauliflower. The stem is so short that the head appears to rest on the ground, like that of the Early Dwarf Erfurt Cauliflower. From this variety, however, it differs entirely in the appearance of the leaves, which are broad, undulated at the margin, and generally twisted. The head forms very quickly, but soon grows out of shape, if it is not cut in time.

The *Early Picpus Cauliflower* is a slightly taller strain, and more vigorous than the Alleaume Cauliflower.

Earliest Paris Forcing Cauliflower.—A variety with a slender and rather long stem. Leaves narrow, nearly straight, almost flat at the ends and edges; head of medium size, forming soon, but not continuing firm very long. This kind is especially suitable for sowing in summer; if sown in April or May, the head forms in August or September.

Imperial Cauliflower.

Imperial Cauliflower.—This handsome variety is very much like the Dwarf Erfurt, but a darker green, and larger altogether. It is an early kind, with a fine white, broad, firm head, and remarkable for the regularity of its growth and productiveness. When grown true to name, it is certainly one of the best early varieties of Cauliflower.

Half-early, or Intermediate, Paris Cauliflower.—A plant of medium size, with large, deep, somewhat glaucous green leaves, surrounding the head well, and having the ends turned towards the ground, the edges being undulated and coarsely toothed. Stem rather short and stout; head large, very white, and keeping firm for a long time. This variety was formerly more extensively grown than any other by the Parisian market-gardeners, but at the present day it is rivalled by the Short-stalked Lenormand and several other newer varieties of the same earliness.

Half-early Paris, or Nonpareil, Cauliflower.

The *Half-early Lemaitre Cauliflower* is a good strain of the Half-early Paris variety. The stalk is short, and the head is handsome, large, very compact, and very white. It is much used for autumn cultivation in the fields in the vicinity of Paris, at Chambourcy, etc.

Lenormand's Short-stalked Cauliflower.—The appearance of this variety distinguishes it at once from all other kinds when it comes true to name. The stem, which is extremely short, stout, and thick-set, is furnished almost to the ground with short, broad, rounded leaves, not much undulated except at the edges, very firm and stiff, rather spreading than erect, and deep, almost glaucous green. The head is very large and firm, a splendid white, and keeps firm for a long time. The plant is early, hardy, and productive, and takes up comparatively little ground, so that

Lenormand's Short-stalked Cauliflower ($\frac{1}{10}$ natural size).

it is not surprising that its cultivation has been very much extended in the course of a few years.

Large White French Cauliflower (*Choufleur demi-dur de Saint-Brieuc*).—A large, stout plant, with long, undulating, deep green leaves. Stem long; head firm, compact, and keeping pretty well. This variety, which is very much grown in Brittany, whence the heads are sent to Paris, and even to England, is very hardy and highly suitable for culture in the open ground.

Late Paris Cauliflower.—This is the latest of the varieties grown by the market-gardeners about Paris. It differs from the preceding variety chiefly in being somewhat later, and the head has the advantage of remaining hard and firm for a longer time.

Large Algiers Cauliflower.

It also differs in the appearance of its leaves, which are very numerous, long, very undulating, and intensely green. It is the least extensively grown of the three kinds which are most commonly cultivated about Paris, the market-gardeners there only using it for summer sowings to bring in a crop in the latter end of autumn.

Large Algiers Cauliflower.—A very good kind for the south of France and Algeria, of dwarf habit and vigorous growth, quite hardy and very early, with stiff entire leaves, only slightly convoluted at the edges, and dark green, almost slate colour. It is mostly grown for use at the end of summer and during autumn, and is easily grown, not only in kitchen gardens, but also in the fields, provided it gets all the water it needs. The head is large, and its beautiful white head is well set off by the dark foliage. In

foreign markets a very tall, late, and leafy variety is sometimes offered under the name of Algiers Cauliflower, but it is really the Autumn Giant Cauliflower, a very interesting variety, but entirely different from the true Algiers Cauliflower here described.

Early London, or **Early Dutch, Cauliflower.**—A large and hardy variety, suitable for field culture. Stem long and rather slender ; leaves long, not very broad, gray-green, and undulated. This is one of the kinds of Cauliflower which have the midrib of the leaf bare at the base for the greater part of its length. The head is hard and firm, but not very large. It is a half-late variety, and, in its native country succeeds better than the French kinds. It is grown on a large scale about Leyden, whence great quantities of it are exported to England to compete in the London markets with the Cauliflowers sent from the French coasts, especially from Brittany. The name of *Dwarf* Dutch Cauliflower given to it by the Germans is only by way of comparison with other Dutch varieties, for it is a tall kind compared with the French varieties.

Early London, or Early Dutch, Cauliflower ($\frac{1}{10}$ natural size).

Late Asiatic Cauliflower.—A vigorous kind, with numerous large, undulated, rather dark green leaves, and a shorter stem than the preceding variety, like which it is hardy and rather late. It is suitable for growing in the open ground, and should not be sown later than May, to bring in a crop in the autumn. This is a large and very highly esteemed late variety.

Stadtholder Cauliflower.—Very nearly allied to the Early Dutch Cauliflower, this variety exhibits almost the same characteristics of growth, and its difference is that it is a few days later. In this respect it is intermediate between the Early Dutch and the Walcheren Cauliflower. The stem is shorter than that of the other Dutch kinds, and the leaves are more undulated at the edges.

Walcheren Cauliflower, or **Walcheren Broccoli.**—This is the latest of all Cauliflowers and one of the hardiest, so that it may be regarded as intermediate between the Cauliflowers, properly so-called, and the Broccolis, among which it is not unusual to find it classed. It has a long, stout stem, and numerous long, stiff, and

erect gray-green leaves. The head forms very slowly ; it is handsome, large, very white, and of a fine close grain. The seed should be sown in April to ensure the head being well grown before the approach of frosty weather. When sown late, it often withstands the winter and heads early in spring.

Incomparable Cauliflower.—Vigorous in growth, with tall, erect, broad, twisted leaves, of a gray-green colour, resembling those of the Autumn Giant Cauliflower, and medium stem. Head very large and fine in grain. A good variety for producing a late outdoor crop in the autumn. Sown in April and May, it is fit for use several days before the Autumn Giant Cauliflower, which it

Veitch's Autumn Giant Cauliflower.

resembles very nearly in the vigour of its growth and the largeness of its leaves.

Veitch's Autumn Giant Cauliflower.—A large and vigorous variety, with a long stem and large, undulating dark green leaves. Head very large, firm, very white, and well covered by the inner leaves. It is a late kind, coming in about the same time as the Walcheren Cauliflower, but it is not so hardy. In the north of France it can only be grown for a late autumn crop in the open ground. It should be sown in April or May.

Giant Italian Self-protecting Cauliflower.—Before the head forms it is not easy to distinguish this variety from the preceding

one, like which it has long and broad leaves, and the leaf-stalks much tinged with purple on the part next the stem. The ends of the leaves, however, are somewhat narrower and more pointed. When the head is about to form the central leaves turn and fold themselves over it so as to cover it completely until it has attained nearly its full size, when it comes into view for the first time.

Purple Cape Broccoli (*Choufleur noir de Sicile*).—In its habit of growth this variety resembles the Algiers Cauliflower. It has a long stem, very large dark green leaves, rather wavy, almost crimped, short, and broad for their length. It differs from all other kinds in the colour of the head, which is purple and coarser in grain than in any other variety, although very compact, firm, and large.

Purple Cape Broccoli ($\frac{1}{10}$ natural size).

This is not a very late variety. It is always grown in the open ground, and the crop begins to come in early in September.

The Russian Cauliflower, grown in the north of France, is a handsome long-stemmed variety, with oblong grayish, light green leaves, narrower and more pointed than those of the Early Dutch Cauliflower. It is a late field sort.

The varieties of Cauliflower grown in Germany under the names of *Cyprischer*, *Asiatischer*, etc., come very close to the Dutch varieties.

BROCCOLI

Brassica oleracea Botrytis, D.C.

French, Chou Brocoli, Chou-fleur d'hiver. *German*, Broccoli, Brockoli, Spargelkohl. *Flemish*, Brokelie. *Danish*, Broccoli, Asparges kaal. *Italian*, Cavol broccolo. *Spanish*, Broculi.

The Broccoli, like the Cauliflower, is a cultivated variety of the Wild Cabbage, and is grown for the sake of the head, which is produced in the same way and has the same qualities. The growth of the Broccoli, however, is much more prolonged, and instead of producing the head the same year in which the plants are sown, it usually does not do so until early in the following

spring. The two plants also differ somewhat in appearance, the Broccoli usually having more numerous, broader, stiffer, and narrower leaves than the Cauliflower, and generally bare leaf-stalks; the veinings of its leaves are also stouter and whiter. Its heads, although handsome, firm and compact, are seldom as large, in this climate, as those of good varieties of Cauliflower. The seed of both plants is identical in appearance.

The cultivation of the Broccoli dates back to a more remote period than that of the Cauliflower, as the name, at least, would lead us to infer. In Italy, the name *broccoli* is applied to the tender shoots which, at the close of the winter, are emitted by various kinds of Cabbages and Turnips preparing to flower. These green and tender young shoots have, from time immemorial, been highly esteemed as vegetables by the Italians, who were careful to select and cultivate only those kinds which produced the most tender shoots in the greatest abundance. The Sprouting, or Asparagus, Broccoli represents the first form exhibited by the new vegetable when it ceased to be the earliest Cabbage, and was grown with an especial view to its shoots. After this, by continued selection and successive improvements, varieties were obtained which produced a compact white head, and some of these varieties were still further improved into kinds which are sufficiently early to commence and complete their entire growth in the course of the same year. These last-named kinds are now known by the name of Cauliflowers.

CULTURE.—The seed is sown in a nursery-bed from the beginning of April to the end of May, according to the earliness of the variety; the seedlings are usually pricked out in a bed, and in June or July are finally transplanted. Like all plants of the Cabbage family, they are benefited by frequent hoeings and waterings. At the beginning of winter a mulching of manure is applied, and the plants are earthed up to the lowest leaves, or they may be taken up altogether and laid in a sloping trench, with the heads turned to the north. The ground in which they are to pass the winter should be sweet and well drained, and the plants should, if possible, be protected in severe frosty weather. In March the heads begin to form, and may be cut until June, if successive sowings have been made.

As a rule, in private gardens Broccoli is cut when about a third or half its full size: the aim of growers should be, not the production of gigantic heads, but a constant succession of firm, compact Broccoli of medium size. Some growers choose a few good kinds and make successional sowings, whilst others select a number of varieties that will naturally succeed each other, although they be all sown and planted out at the same time.

This is doubtless the best plan when the ground intended to be occupied with Broccoli can be all spared and got ready at one time; but it frequently happens, where the

demand for vegetables is great, that part crops must be planted as the ground becomes vacant. Many people plant Broccoli between rows of Potatoes, and where the ground is limited and the kind of Potatoes grown are dwarf and planted a good distance apart, it is doubtless a good system. Where this system is adopted the hardest pieces of land should be selected; the firmer the land, the better the plants stand the severity of the winter. They also come into use more regularly in rotation in their several seasons, and form larger and closer hearts than if planted in less compact soil. Plenty of room to grow must be allowed them. Supposing two rows of early or second-early Potatoes are planted from 20 in. to 2 ft. apart, there should be two rows of Potatoes between every two rows of Broccoli, which will place the rows of Broccoli about 3 ft. 6 in. or 4 ft. apart; and this distance is not too much, as it gives both crops plenty of room to develop themselves. The Potato haulm should be turned from the Broccoli to the unoccupied space between each two rows of Potatoes. It is now a common practice to plant Broccoli with a crowbar; the holes are filled in with fine soil, and afterwards thoroughly soaked with water.

Sowing and Planting.—Though June is the month in which most plantations of Broccoli are made, yet it is frequently July before the work is done. Plants put out in August will make nice heads, but the sooner the planting is done after the middle of June the better. Though planting early ensures the finest plants and largest heads, the time of sowing or planting does not materially affect the plants as regards the time they come into use. The time for sowing Broccoli-seed varies from February till April, according to different localities; as a rule, from the end of March to the middle of April is the best time if the weather be genial. The best manner of sowing is in shallow drills, 6 in. apart, and, if the seed be good, it should be sown thinly. The whole sowing may be made at the same time, and planted at the same time, for convenience' sake; and by planting many varieties a regular supply throughout winter and spring may be ensured when the winters are mild—for it is certain that no practice as to time of sowing or planting will ensure the heads forming at a certain time, if during winter we have protracted periods of frost or cold, during which all growth is at a standstill. Plants from sowings made early in April will, under favourable circumstances, be large enough for pricking out by the middle of May; they should have a moderately rich, open border, where they can have the benefit of the sun to keep them strong and sturdy. They should be pricked out 7 or 8 in. apart from plant to plant, and by the beginning of June the ground should be prepared and the plants finally planted out—choosing a showery time, if possible. Many people never transplant their Broccoli previous to final planting; but where time can be spared, it is much the best, as the plants get stronger and better able to resist the attacks of slugs, snails, etc., than small plants put out direct from the seed-bed.

If practicable, the ground should be trenched two or three spades deep, or at least double-digged. When there is not time for doing either of these, then the ground must be dug over a spade deep only, taking care to break the soil up thoroughly, as deeply as a good

spade will do it, and working in some well-decayed manure at the same time, the soil being broken up well in the trench, and the surface a little rough. Plant as soon as the digging is finished. If the planting be done in June or July, from 2½ to 3 ft. must be allowed between the plants; if deferred till August, they need not be allowed so much room. If the weather be dry, the seed-bed, or that from which the plants are taken, should be watered well the night before, to soften the soil. The holes to receive the plants should always be made sufficiently large to admit of their being easily put in without breaking their roots. "Buttoned" and stunted plants are in many cases caused by bad planting. They are put in with broken and mutilated roots; and those that have a tap-root often have it bent double in getting it into the hole, and, instead of the point being at the bottom of the hole, it will be sticking up above the surface. No one should wait a very long time for wet weather in which to plant Broccoli: it is better to get the planting done and water well once or twice, and the plants will then do till rain comes. When the plants are fairly established, and have grown a little, they must be earthed up with the hoe, which will prevent the wind from twisting them about and disturbing their young roots.

Soil and Manure. — Broccoli thrives best in a deep, loamy, well-drained soil; but it is not very particular in this respect, and will produce fine heads in any well-enriched soil of which the staple is loam. In old garden soils in which humus has accumulated, it is often attacked with the grub or maggot, which causes "clubbing." In such cases lime may be applied with advantage, or burnt clay and fresh loam. The ground should be trenched two or three spades deep previous to planting, and the manure, if rotten, well incorporated with the soil, or, if rank, buried in the bottom of the trench. If trenching cannot be done, then Broccoli should follow some other crop, such as Potatoes or Onions, or any crop not belonging to the Cruciferæ or tap-rooted section, such as Carrots, Turnips, or Beet, and the ground should be dug as deeply as a good spade will go, and well manured. Where the soil in which Broccoli is to be planted is naturally of a light character, if moderately rich, it should not be dug, but made as firm as possible round the plants. The best kind of manure for Broccoli is undoubtedly well-rotted stable manure, with a sprinkling of soot added to destroy worms. Watering is seldom necessary after plants get well established.

Heeling-in Broccoli.—As regards the heeling-in or layering of Broccoli, many growers think it a great advantage, whilst others think it at least unnecessary. As a rule, private growers are in favour of the practice of layering; their objects being, firstly, to check growth, as they believe that disturbing the roots has the effect of hardening the whole plant, and of enabling it better to withstand severe weather; secondly, to place the plants in such a position that the sun, during alternate frost and thaw, will not get to the hearts, as these suffer more after being thawed by the sun in the day than when continuously frozen. For this reason the heads are laid so as to face the north or west. To accomplish this, if the rows run east and west, they commence on the north side of the first row, and take out a spit of soil just the width of the spade, so as to form a trench

within 2 or 3 in. of the stems of the plants, laying the soil, as the work proceeds, on the side away from the row. This necessarily removes the soil from the roots, no more of which is broken off than can be avoided. All the plants in the row are then regularly bent over, until their heads rest on the ridge of soil taken out of the trench. When this is done, commence with the next row, taking the soil out so as to form a similar trench, and laying it in a ridge upon the stems of the row of plants bent over, so as to cover them right up to their bottom leaves; and, in this way, proceed until the whole is completed. If the rows stand north and south, the work is begun on the west side. By this process, as will be seen, all the roots on one side of each row, and a portion of those on the other, are disturbed. This causes the leaves to flag a good deal for a week or two, and checks growth. The larger and more vigorous the plants, the greater the need for thus preparing them for winter. In light soils, where they can be got up without much mutilation of the roots, should it be desirable to prepare the ground for some other crop before the Broccoli is off in spring, they may be taken up altogether and laid in some more convenient place, lifting them, as far as possible, with all their roots intact. Where time can be spared, we believe this to be a good system, as we have noticed that where Broccoli is managed in this way, it is only during exceptionally severe winters that it gets destroyed. The length of time during which this vegetable affords a succession, at a period of the year when there is not much variety, makes it worth while to do all we can to prolong its season. Fortunately, however, severe injury to the Broccoli crop is the exception rather than the rule, and is quite as likely to be the consequence of imperfectly ripened stems as of hard weather.

Protecting. — When Broccoli comes into use in too large quantities at a time, and a blank in the supply is likely to occur, some of the plants may be taken up and placed in an open shed in which there is a fair amount of light and air. Some ordinary soil may be put into it, and the plants, the heads of which shall have attained a usable size, may be placed in the soil—but not too thickly, or the leaves will turn yellow and injure the heads. If this be done in succession as the plants form heads, there will always be on hand a supply of Broccoli. Frames or pits are better than a shed in which to keep them, but these are generally required for other purposes. The practice of taking up Broccoli in autumn when nearly fit for use, and hanging them head downwards in a shed or other building, is not good; for, although they will keep for a time in that way, they get tough and inferior compared with those that have had their roots in moist soil.

Growing for Exhibition.— When Broccoli is required for exhibition, small plantations should be made in different situations, in order to make sure of having them in at the required time. For this purpose large compact heads are indispensable, though it is better to have them somewhat small and close than large and open. Trenches are sometimes dug for the plants, and it is a good system where time can be spared. The trenches should be dug 2 ft. wide and two spits deep; the top spit being taken out and laid on each side, then a good thick coat of fresh horse-droppings, or rotten

manure, thrown in the trench, to be turned in and well incorporated with the second spit. The plants may then be put in, and as they grow the soil that was taken out of the trench may be put back round the stems of the plants and trodden in firmly. Good soakings of manure-water may be given when the soil is dry, but after the heads are once formed it must be discontinued, or it will cause the flower to open. In cutting, the whitest and firmest heads should be selected, and the more they resemble each other in size and appearance the better; they should never be trimmed until they are going to be put on the exhibition table, and then not so severely as is often done. If it be necessary to cut the heads some time previous to their being shown, the best way is to divide them with 5 or 6 in. of stem and place them in shallow pans filled with cold water standing in a cool spot. The leaves should be tied over the flower, and, if an occasional sprinkling overhead be given them, it will help to keep them fresh. This will be found better than pulling up the roots and hanging them up in sheds and similar places.

Culture for Market.—This crop is grown by market-gardeners near London chiefly under the shade of fruit-trees, but in the valley of the Thames there are acres of Broccoli in the open fields. The early supplies of Broccoli brought to the market are produced in the west of England, where the climate is mild, and the heads produced there are superior in size and quality to those grown near London. In mild seasons Broccoli is so good and plentiful as to be of little profit to the grower. In the winter of 1878 many never brought their produce to market at all, but made use of it at home, so low were the prices offered for it in the market. In the market-gardens about London, the Purple Sprouting, the Walcheren, Snow's Winter White, and Veitch's Autumn Giant are the kinds chiefly grown. The first sowing is usually made during the month of April on beds of rich soil. Sometimes, however, the time of year when ground will be vacant to receive the plants influences the time of sowing, for it is an important matter to have the young plants healthy and stocky at planting time. If sown so early as to have to be kept long in the seed-bed, they become "drawn," and consequently do not yield such good results. Another sowing is generally made in the middle of May; indeed, from this sowing the principal winter crop is obtained, and more plants are raised than are required, so that all clubbed and weakly ones can be discarded at planting time.

A sowing of Sprouting Broccoli is made in the end of May or early in June, from which is obtained a supply of sprouts during the following winter and early spring, a time when they are in great demand. When the young Broccoli-plants appear above-ground they are first hand-weeded, and afterwards thinned by means of narrow hoes. As soon as they are strong enough for transplanting they are planted in rows under fruit-trees, or in any convenient situation. When planted between rows of fruit-bushes, two lines of plants are inserted in the intervals between every two rows of trees; if two drills of Potatoes occupy the space between the trees, then only one line of Broccoli is planted, and that between the two drills of Potatoes. Should the whole space under an orchard be planted with Potatoes, as soon as these are earthed-up Broccoli is

planted between the rows *without the soil being loosened or dug*. The Potatoes ripen before the Broccoli can injure them much, and when the Potatoes are removed the Broccoli has the whole space to itself. The trees lose their leaves in October; then the Broccoli, having the benefit of increased light, becomes invigorated, and some of the plants then begin to afford a good supply of sprouts, which are not all gathered at once, even from the same plant, but at intervals as they become fit for use. The immense breadths of Broccoli grown in some of the market-gardens render it almost impossible to have all heeled in as we often see them in private gardens; yet it is seldom they are injured by frost, and the fine white, firm heads that may be seen by thousands in Covent Garden Market during the autumn are seldom surpassed, if even equalled, in private gardens. In the neighbourhood of Shepperton, in the Thames valley, may be seen breadths of Broccoli from twenty to thirty acres in extent, and from this place alone it is calculated that in the height of the season as many as 30,000 heads per week are sent to market. In some parts of Kent Broccoli is grown to a large extent, one grower yearly planting over 200,000 plants.

USES.—The same as those of the Cauliflower. The value of this vegetable to the many who depend on the markets for their supplies is greatly lessened by the deterioration it suffers from being cut long before being used. Early crops being grown in perfection in Cornwall, and at considerable distances from London, the heads are often stale before being used, even when they do not seem so. We have frequently noticed an intensely bitter flavour in the Broccoli sent to market, even when cooked in the most careful manner. Every one who can should grow their own, and cut it an hour before dinner!

Extra Early White Broccoli.—Hardy enough in the climate of Paris; in earliness it surpasses all the other kinds. The leaves are short, compact in growth, somewhat less undulating than those of the Large White French Broccoli. The head is large, firm, white, and very fine in grain. It is a good variety for forcing.

Early Saint-Laud Broccoli.—Leaves short but well developed, broad, of a grayish dark green colour, and slightly crimped; head white and regular. A fine variety much grown in the south-west of France, where it comes into use between the Extra Early and the Extra Late Broccoli, a few days earlier than the Early White Broccoli.

Large White French Broccoli (*Brocoli blanc de Saint-Brieuc*). —A vigorous-growing plant, with rather numerous, long, stiff leaves, of a glaucous green colour and deeply undulated on the edges; the interior leaves which cover the head are very much twisted and almost curled; head white, very compact, and continuing firm for a long time. A hardy and easily grown variety.

Adam's Early White Broccoli.—This variety differs but little in its general character from the preceding one, from which it is particularly distinguished by being ten or twelve days earlier. It produces a great number of leaves, which are undulated at the edges to a remarkable degree.

Adam's Early White Broccoli ($\frac{1}{10}$ natural size).

Roscoff White Broccoli.—This very excellent kind, which is most extensively cultivated in the department of Finistère, is very like the preceding one, of which it may be considered a very constant and very early local form. This is the variety of which such large quantities are brought to Paris every year, at the end of the winter.

Easter Broccoli.—This is a very handsome, early, and distinct variety. Its leaves are not so numerous as those of most other kinds of Broccoli, and have a peculiar triangular appearance, being rather short, broad at the base, and pointed at the end; they are stiff, not much undulated, and are finely toothed on the edges; their gray colour is equally characteristic. This variety, which in the south of France is also called the Easter Cauliflower (*Chou-fleur de Pâques*), is very early, requires less attention than many other kinds, and even the weakest plants of it form very regular heads. It is one of the best kinds, though tender.

Easter Broccoli ($\frac{1}{10}$ natural size).

Large White Mammoth Broccoli.—A thick-set variety, lower in growth than the preceding kinds, and with shorter and broader leaves of a dark green colour, very numerous, surrounding and protecting the head well; the inner or heart leaves are often twisted; head very large and white, and of remarkably good quality. This is one of the latest varieties which continue to bear for the longest time.

Extra Late White Broccoli.—Leaves broad, entire, slightly crimped, undulating at the edges, set close to the head, which is

Large White Mammoth Broccoli.

firm, white, and very finely grained. A very vigorous-growing and hardy variety, coming into use after the White Mammoth Broccoli in April or May, before the spring Cauliflowers appear in the markets.

Purple Cape Broccoli.—See under **Cauliflower.**

Purple Broccoli.—An exceedingly hardy kind, totally distinct from all other varieties; leaves rather deeply lobed, numerous, long, spreading, pale grayish green, with purple-tinged veins; head purple, rather firm, of medium size, and late to form.

Extra Late White Broccoli.

Purple Sprouting, or Asparagus, Broccoli.—Under this name different varieties have been cultivated; that which is now most commonly grown has purple stems and leaves, resembling a curled Red Cabbage up to a certain point, and producing not only in the heart but also in the axils of the leaves

rather thick, fleshy purple shoots, the flower-buds of which do not abort like those varieties which form a true head. These shoots are produced in succession for a long time, and they are gathered as they lengthen and before the flowers open, and are used like green Asparagus, from which circumstance the plant has received the name of Asparagus Broccoli.

Purple Sprouting Broccoli.

Under the name of *Sprouting Broccoli*, a variety with green shoots is most commonly grown in England, the flowers of which are partially abortive and form at the end of every shoot a small bulging mass or lump, of a greenish yellow colour. The *Marte* Cauliflower, of Bordeaux, is a true Sprouting Broccoli, which produces a great number of small, compact purplish heads of very good quality. This variety, unfortunately, does not endure severe winters in the climate of Paris.

The number of kinds of Broccoli is extremely large, as it is one of those vegetables the varieties of which are not well established. In England, more than forty different forms of it are grown. Of these we mention here the kinds with coloured heads :—

Green Cape.—A green-headed variety, which comes in in October and November.

Late Green, or **Late Danish.**—The head of this is of the same colour as the preceding kind, but comes in in April and May.

Late Dwarf Purple, or **Cock's-comb Broccoli.**—A very hardy, purplish-headed kind, coming in only in April and May.

Among the white-headed kinds, the most esteemed are :—

Backhouse's White Winter.—Distinct from Snow's and Osborn's, with the good qualities of both.

Osborn's White Winter.—A fine mid-winter variety, with heads as white as a Cauliflower.

Improved White Sprouting.—A variety very productive of shoots.

Early Penzance (Cornish).—Turns in very early ; fine, compact, pure white head.

Knight's Protecting.—A very useful protecting variety.

Sulphur.—Very useful, extremely hardy, and produces fine heads.

Champion (Barr).—A very distinct, hardy early Broccoli. The flower is well protected, and, with good culture, if allowed to attain its full size, produces very large heads.

Criterion (Barr).—The best of all the late Broccolis, coming into use after the middle of May, and giving a succession till the Cauliflowers are ready to cut.

Chappel's Cream.—A fine variety, with large creamy white compact head.

Lauder's Protecting Late White Goshen.—A fine, hardy late variety.

Leamington (Perkins).—A well-protected, first-rate late Broccoli.

Ledsham's Latest of All.—Certificated by the Royal Horticultural Society as one of the finest and latest varieties known; head "white as snow."

Cattell's Eclipse.—A handsome late form of the Mammoth Broccoli.

Grange's Early Cauliflower Broccoli, or **Bath White.**—An extremely early kind, which begins to come in in October.

Cooling's Matchless.—A rather leafy kind, but producing a fine white head, like the White Roscoff.

Snow's Superb White Winter.—A compact, short-stemmed variety, which may be grown to come in either at the end of autumn or in spring.

Veitch's Protecting.—A good hardy kind, the fine white heads of which are naturally protected by the peculiar growth of the leaves.

Wilcove's.—A good late variety, which withstands the winter well.

The Italians cultivate a great many varieties of Broccoli, and Italy is the country in which this vegetable originated; but as Cauliflowers of every kind pass the winter there without injury, they give the name of Cauliflower to all the varieties which produce white heads, the name Broccoli being restricted to the sprouting or coloured varieties. The Giant Cauliflower of Naples is called a Broccoli in its native country. On all the coasts of the Mediterranean there are varieties of Cauliflower which come in all through the winter, in uninterrupted succession to the autumn kinds. There are also, among the purplish coloured Broccolis, particular kinds for every month of the winter; those which come in in November are named *San-Martinari*, in December *Nataleschi*, and the rest *Gennajuoli*, *Febbrajuoli*, *Marzuoli*, and *Apriloti*, according as they come in in January, February, March, and April.

CELERY

Apium graveolens, L. *Umbelliferæ.*

French, Céleri. *German*, Sellerie. *Flemish*, Selderij. *Danish*, Selleri. *Italian*, Sedano, Apio. *Spanish*, Apio.

Native of Europe.—Biennial.—A plant with a fibrous, rather fleshy root. Leaves divided, pinnate, smooth, with almost triangular toothed leaflets, of a dark green colour ; leaf-stalks rather broad furrowed, concave on the inside ; stem, which does not appear until the second year, about 2 ft. high, furrowed, and branching ; flowers very small, yellow or green, in umbels ; seed small, triangular, five-ribbed, and having a very aromatic odour. Their germinating power lasts for eight years.

Culture.—In England Celery may be had for use from the beginning of September till late in April. The ground on which it is to be grown must be well drained to the depth of 3 or 4 ft., and trenched 2 ft. deep, enriching it at the same time with good stable-yard manure and rotten leaves. The best way is to trench and ridge the ground at the same time, burying the manure deeply, so as to encourage deep rooting—an advantage during dry weather. Some time before the ground is required, level down the ridges ; if the soil is heavy, fork it over several times, in order to bring it into good condition before forming the trenches. The latter, for tall-growing varieties, should be 6 ft. apart, and for dwarfer sorts 4 ft. apart. Make them 18 in. deep and 15 in. wide. If possible, they ought to run north and south, in order that the plants may have the benefit of the midday sun. Tread the bottom of them quite firm, and place in them from 6 to 9 in. of perfectly rotten manure, always preferring rich, well-decayed material from the stable-yard. On this must be placed some soot, when the trenches will be ready to receive the plants. By placing the manure deep the roots reach it just when the centre leaves that are blanched are coming up, and if the plants are well fed at that time they form large hearts, crisp, and white as ivory.

For very early Celery, prepare some rich soil and fill a seed-pan or box with the compost, firming it well ; sow the seeds thinly, cover them over lightly with some finely sifted soil, and water through a fine-rosed watering-pot, placing the pans or boxes upon a shelf in the stove or in a vinery at work. The seeds will soon germinate, and when the young plants have made two or three leaves prick them off into boxes in rich loamy soil with plenty of manure, a portion of leaf-mould, and a sprinkling of silver sand to keep the compost open. Seeds for the early crop ought to be sown in February, and the seedlings will be ready to plant out as soon as all danger from frost is over. Sometimes early Celery-plants are grown in 4 in. pots where pits or houses are at command, and thus treated they sustain no check when planted in the trenches and well watered.

A second sowing may be made about the middle of March, either in boxes in a warm house or pit, or a slight hot-bed on which are put 6 in. of fine, rich soil made pretty

firm, covering lightly with some finely sifted soil. Prepare a piece of ground by treading it firmly and placing on it 6 in. of rotten horse-manure and leaf-mould in equal portions, tread firmly, and cover with 2 in. of fine, rich soil. When the plants have made two or three leaves, prick them out in rows 4 in. apart upon the bed thus prepared, firming them well in as the planting proceeds, and watering them with a fine-rosed pot, so as to settle the soil round them. If at hand, a frame might be placed over the bed for a short time until the young plants have got established, giving plenty of air during the daytime, or the plants can be covered with mats at night. If properly cared for, they will be fit to be transplanted into the trenches in two months from the time the seed was sown.

For late plants a sowing may be made in April the same as in March, only the plants will need no protection when pricked out.

Trenches for Celery are often made between rows of early Peas, which shade the Celery-plants when newly planted in hot weather, and when the Pea crop is harvested the Celery has the full benefit of sun and air. The trenches being ready for the reception of the plants, water them the day previous to transplanting; lift them carefully with a trowel, preserving every fibre, replant 1 ft. apart, press the soil firmly round the roots, water well, and shade for a few days if the weather be dry and warm. The summer treatment consists in keeping the ground free from weeds by frequent hoeings, watering twice a week if the weather is very dry, and once if dull. When the plants are from 6 to 9 in. high, weak manure-water may be given them once a week. This is prepared by soaking either cow or horse manure in a large tub or tank, applying a portion of soot with the manure-water, or a handful of soot may be scattered occasionally around the plants before watering them. This destroys slugs and feeds the plants, giving them a fine green colour. In exposed situations it is often necessary to tie the leaves up when 1 ft. or so high, to save them from being broken by high winds, using for the purpose strands of fine matting, but be careful that the ties do not cut the leaves when growing. It is best not to earth the plants up much until they have nearly completed their growth. Merely scatter a little soil over the roots once a fortnight to serve as a mulching and induce the roots to come to the surface.

Blanching requires from five to seven weeks after the final earthing. Before commencing to earth up, all small leaves and any suckers, or secondary shoots, which may have grown from the base of the plants should be removed; tie the leaves carefully with some pieces of thin bast, which will give way as the plants swell. Some use tubes for blanching, such as drain-pipes, placed round the plants; others paper collars, and some employ clean paper, which keeps the soil from getting into the hearts of the plants when earthing is being performed, raising the collars as the earthing proceeds, or the collars may be left upon the plants. If tubes are not used, the soil must be banked up in the usual way at several times, being careful to keep the leaves close together, so that the heads may be straight and compact after being blanched. Choose dry weather for earthing, for if damp the hearts are sure to rot. Before earthing scatter a little lime round

each plant, which destroys all slugs, which are often destructive to Celery during the winter in damp soil. A sprinkling may also be used when proceeding with the earthing.

Celery may be grown in single rows or as many as may be thought fit, making the trenches wide enough to receive the number of rows intended. One row is the most convenient in private gardens, and even market growers adopt single rows more than double ones. When the earthing is finished, and before severe frost sets in, cover the tops of the ridges with dry straw, or better, if at hand, some dry bracken, which prevents the frost from injuring the tops of the leaves and keeps the hearts of the plants dry. Perfect specimens of Celery must have the following good points—viz. the leaf, or stalk, must be broad, thick, crisp, free from ridges and stringiness, and the heads good in form and weight.—W. C.

Market-Garden Culture.—The valley of the Thames is well adapted for Celery culture, and many acres of land in the Fulham fields and elsewhere are occupied by it. The sowing for the first crop of Celery is generally made early in February; a large main sowing is made in March, and for the latest crop sowing takes place in the middle or end of April. The early and main sowings are usually made in frames on hot-beds, but for a late crop the seed is sometimes sown in the open air on manure-beds or in similar positions. The seed is sown at all times rather thickly, in moist, light soil, and is but lightly covered. When up, the seedlings, if too thick, are thinned out to 1 in. or so apart. Some dig out trenches and fill them with fermenting material, on which they place a few inches thick of light rich soil, and after sowing the seed cover the bed with mats or rough litter until the seed has germinated, when the coverings are removed during the daytime and replaced at night should the weather be unfavourable.

In all cases the beds on which Celery-seed is sown are made firm either by treading or rolling, and a little light soil is sifted through a fine sieve over the seed after it has been sown. The seedlings in all cases are freely exposed to light and air in order to render them stout and stocky. Those from the first sowing, when large enough, are pricked out in frames on a bed of rotted manure, and those from the main and later sowings are pricked out in May and June on beds similarly prepared on a sheltered border out of doors. In these positions they receive abundance of water in order to keep them growing, for a check at any period in the growth of Celery-plants is very detrimental. The plants are usually pricked out in rows from 6 to 8 in. apart, about half that distance being allowed between the plants in the rows. When planting time has arrived a spade is run between the rows and a good soaking of water is given, after which nothing more is done for a few days. A spade is then pushed under the plants, which are thus carefully raised, separated, and taken on hand-barrows or in boxes direct to the trenches. When planted, a good watering is given them, and thus they sustain a very slight check through removal; but market-gardeners seldom plant Celery in double rows, as is done in private gardens, one row in each trench being considered the most profitable way. The strongest plants are in all cases selected and placed in trenches by themselves, and the weaker ones by themselves. In that way a

succession is formed, uniformity in the size of the heads is secured, and thus a whole row of plants becomes marketable at one time. They need no sorting, and the ground, being cleared, is made available for other crops.

The ground on which it is intended to plant Celery is, if possible, prepared in autumn by being heavily manured and trenched, the surface being either thrown up in ridges or left in as rough a state as possible until spring, when it is levelled down to be sown with Radishes. In that case the land is marked out into a series of beds from 5 to 6 ft. wide, leaving good wide alleys between them. In these alleys is placed an extra supply of manure, and in them are planted the earliest Celery-plants. By the time these require earthing up the Radishes will have been marketed and the ground cleared of weeds, etc Sometimes, however, whole fields are marked off in beds and the trenches dug out in winter in readiness to receive the Celery, the beds being planted with Lettuces or early Cauliflowers. Market gardeners never plant Celery in deep trenches; on the contrary, they contrive to allow the roots, after the crop is fully earthed up, to be considerably above the bottom of the ridges. Especially is this the case as regards late crops, which in damp, badly drained soils are very precarious. During the growing season Celery is abundantly supplied with water, as are also the crops of salad plants, or French Beans, which are invariably grown between the lines.

Earthing up is performed for the first time when the plants have become fairly established and are 6 in. high; the sides of the trenches are chopped down on the morning of some fine day, well broken up, and allowed to dry for an hour or two, when two men, one on each side of the row, push the soil with the back of a wooden rake to within a few inches of the plants, so as to leave a ridge for the reception of water. At the next earthing the soil is pressed tightly round the bases of the plants, and more of it is chopped down from the ridges; and at the third, which is the final earthing, the ridges are made firm and smooth in such a way as to effectually throw off the rain. The Red and White varieties of Celery are the principal kinds grown, and under the treatment just recorded they become very crisp and solid. Sometimes a crop of Celery is grown for culinary purposes early in spring, and in that case the seeds are sown in June, and the young plants are pricked out rather closely together; they are never earthed up more than once, the object being to secure plants with flavour rather than crispness and good quality.

Keeping Celery.—In severer climates than ours it is often necessary to resort to other and better methods of preserving Celery than are generally practised in this country. In America, where the winters are much harder than they are here, various methods are in use, but the following, described by Mr. Peter Henderson, of New York, we consider the neatest and best, and it would be as well, in cases of a severer season than usual, that it should be known in this country. Indeed, it would be better to adopt it always, as by so doing this vegetable, which all enjoy, may be kept better. Much disagreeable labour may also be avoided in digging in all sorts of weathers, apart from the injury to the plant from exposure to greatly varying temperatures and conditions of weather, as it is at

present. "Get a box 4 or 5 ft. long, 12 in. wide, and 20 or 24 in. deep. In the bottom place 2 or 3 in. of sand or soil—it makes little difference what, provided it is something that will hold moisture. Into this box at the time when Celery is dug up (which in this district ranges from October 25th to November 25th), have the Celery stalks packed perpendicularly with the roots resting on the sand. All that is necessary is to see that it is packed moderately tight, for if not packed tight the air would get around the stalks and prevent blanching. The box may be then set in any cool cellar, and will keep from the time it is put away until March if necessary. A box of the size named will hold about from seventy-five to one hundred roots, according to size. It is quite common for many families to purchase their Celery from the market-gardeners, place it away in a box in this manner in their cellars during the winter, where it can be conveniently got at, and it costs also in this way less than half what it does when purchased tied up from the benches in the market in the usual way. We have for many years followed this method for what we want for our own private use, finding it much more convenient to get it out of the boxes in the cellar than to go to the trenches in the open ground for it in all weathers."

USES.—The leaf-stalks of some kinds and the roots of others are eaten either raw or boiled. In England the seeds (or an extract from them) are used for flavouring soups. Popular as Celery is in England as a cooked vegetable, we have still much to learn about it. The Turnip-rooted, the best of all winter roots, is hardly ever seen out of a few foreign houses.

Cultivation, in developing the leaves and the root of the Celery, has produced two very distinct varieties of the same plant, which are differently employed and require a different mode of culture. These are known as the Common, or Stalked, Celery, and the Celeriac, or Turnip-rooted Celery.

Common Celery* (*Céleri à Côtes*).—This is undoubtedly the most anciently known and the most commonly cultivated kind. It requires a good, rich, soft, well-manured soil, rather moist than dry, and is not usually sown where the crop is to be grown. The earliest sowings are made on a hot-bed in January, February, or March, and the seedlings, while still small, are pricked out into another hot-bed, and not planted out permanently until the end of April or the beginning of May. Subsequent sowings, which may be continued till June, are made in the open ground, so as to have a successional supply of fresh, tender stalks all the year round. The seedlings of these later sowings are not pricked out, but simply thinned and allowed to remain where they were sown, until they are finally planted out. When this takes place, the plants are set in rows, with a distance of 10 or 12 in. from plant to plant in all directions, and the only attention they require is that of hoeing, and frequent and plentiful waterings, in which they delight.

* Celery Leaf Blight, see p. 776. Celery Maggot or Leaf Miner, see p. 776.

Before the stalks are sent to table, they are blanched by excluding the light from them. This is done in many ways, most usually by tying up the outer leaves around the inner ones, and then earthing up the stalks as far as the lowest leaves. This is not generally done all at once, but at first the stalks are earthed up for about one-third of their height, and, eight or ten days afterwards,

Solid White Celery ($\frac{1}{6}$ natural size).

Golden-yellow Large Solid Celery.

up to two-thirds, the remaining third being completed at the end of eight or ten days more.

Sometimes the plants are taken up with balls and planted side by side in a trench, which is then filled with soil ; and sometimes they are planted in spring in trenches, where they are blanched when the time comes, without being transplanted, by filling in the trench with the soil which was taken out in opening it.

Solid White Celery.—A vigorous-growing kind, 16 to 20 in. high, with fleshy, solid, and tender stalks, which, in blanching,

become yellow-white. Leaves erect. This variety is the best for market-garden culture.

Paris Golden Celery.—A very fine variety of Parisian origin; half-dwarf, compact, with well-developed leaves, of light green with golden tints. The ribs are thick, broad, fleshy, and naturally ivory-white, though to fit it for the table it is blanched the same as other varieties. It is vigorous and early, easy of cultivation, and in every way desirable; but it calls for some care at the end of the season, as it does not stand wet so well as most of the other sorts.

Rose-ribbed Paris Celery.—An excellent variety selected from the Golden Paris, of which it possesses all the good qualities, and, like it, has broad, thick ribs, and is not liable to become hollow. It is upright and compact. The foliage has a golden tinge which increases and becomes more conspicuous as the autumn advances. It is also distinguished for the rosy colour of the ribs. The stalks are much less coloured than those of the red varieties, and, when blanched, assume an ivory colour slightly tinged red, which is very attractive. It is one of the best celeries for autumn cultivation.

Rose-ribbed Paris Celery, Self-blanching.

Pascal Celery.—A very vigorous and an extremely productive variety, with short, broad, thick, tender and fleshy green ribs, which, however, blanch very readily if only tied or earthed up. The leaves are upright, vigorous, short, and dark green. It keeps quite well under cover during winter.

White Solid Arezzo Celery.—A very fine, tall, vigorous variety, with dark green and slightly crimped leaves, and very thick, broad, tender, and fleshy stalks. Its interest is rather for growers in the south of France.

White Solid Pascal Celery.

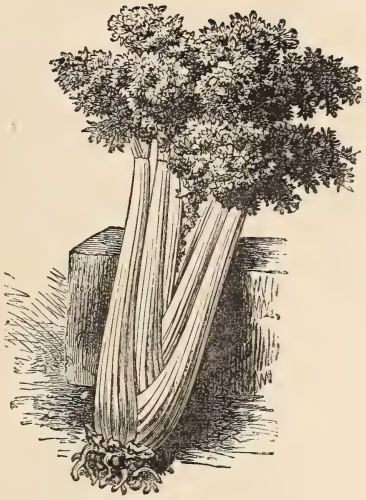
Dwarf Solid White Celery. — This variety, besides being easily blanched, has the further advantage of not producing suckers. The stalks are extremely broad, solid, and erect, so that the plants may be grown very close together, thereby obtaining from an equal area as heavy a crop as that produced by the larger varieties. The stalks are more largely developed in proportion to the dimensions of the leaves in this variety than in any other.

Curled Solid White Celery.—A very distinct variety, with numerous large leaves. Leaflets crisped and undulating, and a lighter green than those of any other variety. The stalks are fairly thick and perfectly solid, and the leaves, instead of being bitter, like those of other kinds, have a mild flavour and can be used in salads. This new variety was raised in the neighbourhood of Niort (Vendée), and began to be distributed about the year 1870. It is, perhaps, somewhat more sensitive to cold than the plain-leaved kinds.

White Plume Celery (*Céleri Plein Blanc d'Amérique*).—A very distinct kind, introduced from the United States of North America in 1885. It is characterised by the

Dwarf Solid White Large-ribbed Celery.

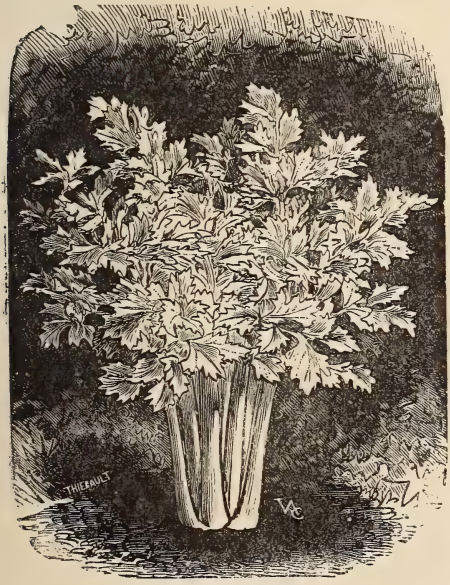
silver-white colour with which its leaves are partly tinged at first, and which later on extends to all the central part of the plant and sometimes to the whole of the foliage. The ribs are white, but, like those of the other varieties, need to be blanched to become quite tender. It is about the same size as the Paris Golden Celery, but broader in habit. It suffers easily from cold, for which reason it should be grown for autumn rather than for winter use.



Curled Solid White Celery.

Fern-leaved Celery.—A very curious variety, with finely cut foliage, having the same qualities as the other White Solid Celeries.

Endive Celery (*Céleri Scarole*). —This is an almost unribbed variety, with leaves that spread over the ground. Rather uncommon in appearance, it hardly deserves a place in the vegetable garden, seeing that the only useful part of it has been reduced to almost nothing.



White Plume Celery.

The **Hartshorn Celery** is a sub-variety of the preceding kind, and, like it, almost unribbed. It is distinguishable by its finely cut leaves, which resemble those of the Rouen, or Staghorn, Endive.

Dwarf Solid White, Sandringham, or **Incomparable, Celery.**—A more thickish kind than the common Solid White Celery. Stalks broad and very solid; leaves short. This variety is easily blanched, on account of the great number of its leaves, which cover one another closely, so that very white stalks may be obtained from it by merely earthing them up, without the trouble of tying up the leaves. In

the United States a variety is grown, under the name of *Boston Market Dwarf Celery*, which comes very close to the present kind, differing from it only in being somewhat taller. Unfortunately, very frequently it has the defect of sending out underground shoots or suckers.

Mammoth White Celery (*Céleri Turc*).—A sub-variety of the White Solid Celery, of extremely vigorous growth, attaining a height of from 20 in. to 2 ft. Stalks very solid, thick, and long, but relatively not so broad as those of the Solid White Celery. This form seems to be disappearing.

Red Giant Solid Celery.

Amongst good English varieties of White Celery the following are worthy of note: *Danesbury Celery*, or *Veitch's Solid White Celery*, *Dickson's Mammoth White Celery*, and *Luckhurst Giant White Celery*. These are compact varieties, with very solid stalks, something like those of the Dwarf Solid White Celery. — *Dobbie's Invincible Celery*, *Seymour's White*, or *Goodwin's White*, and *Northumberland White Celery*. A very tall kind, somewhat resembling the Mammoth White Celery.

London Market Red, Red Giant Solid, or **Ivery's None-such Celery** (*Céleri Violet de Tours*).—A vigorous kind, with very broad, very solid, tender, and brittle stalks of a purple tinged green colour. Leaves half-spreading, broad, and dark green. It is a very hardy variety, and of excellent quality.

Red Large-ribbed Celery.—This is less coloured and more vigorous in growth than the preceding. In shape it resembles the Pascal Celery, from which it has sprung; but it has thicker and stiffer stalks. It is a short, compact plant, hardy, and keeping well. The stalks are thick, tender, and do not become hollow, like most of the early varieties. It is well suited for autumn cultivation.

In England a great number of varieties of Red-stalked Celery are grown, of which, in addition to the present one, we may mention : *Aylesbury Prize Red Celery*, tall and well coloured. *Early Rose Celery*, with purplish ribs and pointed leaves.—*Major Clarke's Solid Red*, or *Wilcox's Dunham Red, Ramsey's Solid Red, Turner's Red Celery.* A vigorous-growing variety, almost as tall as the Mammoth White, but with more branching leaves, which are also of a deeper green colour.—*Select Red Celery, Standard-Bearer Celery*, and *Winchester Pink Celery*, well coloured and rather short. *Carter's Incomparable Crimson*, or *Hood's Dwarf Red, Celery.* This is dwarfer than any other Red variety, but very solid, and crops well. *Man of Kent*, rose-coloured rather than red, half-compact and distinct. *Manchester Red, Laing's Mammoth, Fulham Prize Pink*, or *Giant Red, Celery.* An extremely vigorous-growing kind, attaining a height of over 3 ft.

Celery culture in the United States has grown greatly in extent of recent years ; Michigan, Ohio, and New-York States alone devoting thousands of acres annually to an industry which supplies the great markets of the east and centre from June to January ; and California and Florida keeping up the supply for the remaining months of the year. In America the varieties of celery in cultivation exceed largely in number those grown in Europe. The Paris Golden, the White Plume, the Pascal, and the Dwarf Large-ribbed White Solid Celery are the kinds most cultivated ; but, besides these, there are a certain number of varieties which more or less resemble the last-named Celery, with slight differences as regards height, earliness, and colour. Among the most important of these we may cite :—

Boston Market Celery.—A compact thick-ribbed, solid white variety, much esteemed in Boston markets.

Crawford's Half-dwarf Celery.—Rather taller than our Dwarf Large-ribbed White Solid Celery, with solid, not very large stalks, ivory-white when blanched.

Evans' Triumph Celery.—One of the best of the late kinds, medium-sized, long-ribbed, white, solid, and good in quality.

Golden Heart, or **Golden Dwarf, Celery.**—Half-long, given to throwing out suckers, solid-ribbed and good in quality ; also a handsome light-coloured stalk when blanched. It is hardy, and much cultivated for the late season's and winter market.

New Rose Celery.—A handsome violet-coloured variety, resembling the Violet Tours Celery, but with ribs uniformly solid, tender, and excellent in quality.

Perfection Heartwell Celery.—A late variety, a little taller than the Dwarf Large-ribbed White Solid Celery ; it is yellow-hearted, with medium-sized but solid stems, tender, and good in quality.

Pink Plume Celery.—Differs from the White Plume Celery only in being more or less rosy in the ribs.

Winter Queen Celery.—Late, compact, easily blanched to a cream shade, with solid fleshy ribs that are much esteemed.

Soup Celery (⅛ natural size).

Two other Celeries cultivated in America are *Fin de Siècle* and *Schumacher*, vigorous, tall, long-ribbed varieties, much liked in some localities.

Soup Celery. — A variety that has been very little improved by cultivation, and is probably a reversion towards the wild state. It is hardy, and produces an abundance of erect-growing leaves. Stalks hollow, rather thin, tender, and brittle. The plant sends up great numbers of suckers, and is grown for its leaves, which are cut, like Parsley, and is used in soups and for seasoning. After being cut it produces new leaves.

CELERIAC, or TURNIP-ROOTED CELERY

French, Céleri-rave. *German*, Knoll-Sellerie. *Flemish* and *Dutch*, Knoll-Selderij. *Danish*, Knold-Selleri. *Italian*, Sedano-rapa. *Spanish*, Apio-nabo.

In this kind of Celery it is the root which has been developed by cultivation, and not the leaf-stalks, which remain hollow and of moderate size, while the flavour is so bitter that they are unfit for table use. On the other hand, the root (which, even in the wild plant, forms an enlargement of some size before it divides into numerous rootlets) has been brought by cultivation to easily attain the size of the fist, and often even double that size. The Turnip-rooted Celery is an excellent vegetable, but, as its introduction into cultivation is of comparatively recent date, it is not, as yet, very commonly grown. It keeps well, and forms a valuable contribution to the winter supply.

CULTURE.—It is grown nearly in the same way as the Common Celery, and, like it, requires good, rich, moist, mellow, and well-manured soil. It is generally sown in a nursery-bed in March, and planted out in May. The plants require no further attention than

frequent waterings, and to have the ground kept free from weeds. The market-gardeners of Paris are in the habit, while the plants are growing, of chopping off with the spade the rootlets which grow around the main root, under the (perhaps erroneous) impression that by doing so they cause the main root to attain a greater size.

Common Celeriac, or **Turnip-rooted Celery.**—Leaves smaller than those of the Common or Stalk Celery; stalk always hollow, bitter-tasted, and tinged with a red or bronzy hue; root forming a sort of ball, which is roundish or conical in the upper part, and divided underneath into a great number of rootlets or ramifications, which are more or less fleshy and tangled together. The weight of this, when trimmed of the leaves and rootlets, ranges from 7 to over 10 oz. in the Common variety, but roots of much larger size have been obtained from other varieties.

Turnip-rooted Celery.

Smooth Paris Celeriac.—Root generally broader than long, and somewhat irregular in shape; leaves rather numerous, more spreading than erect.

Improved Paris Celeriac.—This is a variety obtained by selection from the preceding, than which it is larger and smoother, though the roots would grow rather irregular if growers were not careful to cut the side rootlets with the spade, and to pinch off the neck shoots. The market-gardeners of the vicinity of Paris prefer this variety over all others for growing in spent manure mould, or *terreau.*

Large Early August, or **Variegated-leaved, Celeriac.**—The root is round, regular, of medium size, and excellent quality. Remarkable for its very conspicuously striped yellow and green foliage, which, with the rosy ribs, has a pleasing effect. It makes a handsome border that will last until the frost sets in, and help to brighten the monotony of the kitchen-garden.

Early Erfurt Celeriac.—A smaller kind than the Paris Celeriac, but also earlier. Root very clean-skinned, regularly rounded in shape, and with a fine neck.

Apple-shaped Celeriac.—A sub-variety of the Early Erfurt kind, with slight, half-erect leaves, and long purplish leaf-stalks. Root very regularly rounded in shape, and entirely free from rootlets on the upper part.

There is an extraordinarily small kind of Turnip-rooted Celery, the leaves of which are only 4 or 5 in. long, while the root is seldom

Apple-shaped Celeriac.

Large Smooth Prague Celeriac.

larger than a walnut. It is more curious than useful, and is known as the *Tom Thumb Erfurt Turnip-rooted Celery.*

Prague Celeriac.—This may be described as a highly developed form of the Erfurt variety, the roots of which are almost spherical, evenly shaped, and without rootlets, except on the under-part. They are usually double the size of those of the Erfurt variety, and the leaf-stalks are somewhat stouter and whiter.

CHERVIL

Scandix Cerefolium, L.; *Anthriscus Cerefolium*, Hoffm. *Umbelliferæ.*

French, Cerfeuil. *German*, Kerbel. *Flemish* and *Dutch*, Kervel. *Danish*, Have-kjorvel. *Italian*, Cerfoglio. *Spanish*, Perifollo. *Portuguese*, Cerefolio.

Native of Southern Europe.—Annual.—Leaves very much divided, with oval, incised, pinnatifid leaflets; stem 16 to 20 in. high, smooth and few-leaved; flowers small, white, in umbels; seed black, long, pointed, marked with a longitudinal furrow. Their germinating power lasts for two or three years. The seed may be sown all through the year in the open ground, where the crop is to grow, but in very hot weather it is better to sow in a shady position with a northern aspect. According to the season, the leaves may

be cut in from six weeks to two months after sowing. The leaves are aromatic, and are used for seasoning and in salads. It is in much demand in English gardens.

Common, or Plain-leaved, Chervil.—Leaves slight, very much divided, and light green; stems slender, slightly swollen below the joints, channelled, and smooth; flowers in thin umbels produced in tiers on all the upper half of the stem. This is one of the most widely distributed and best known of all kitchen-garden plants. It is seldom used by itself, but, from its fine, strong, aromatic flavour, forms an almost indispensable accompaniment to a great number of dishes. It constitutes the basis of the mixture known by the French name of *fines herbes*. It can be grown in almost any climate, but where the heat is great, it should have a shaded position.

Common, or Plain, Chervil.

Curled Chervil.—A variety of the preceding kind, with crisped or curled leaves. It has exactly the same perfume and flavour as the Common, or Plain-leaved, Chervil, and is better for garnishing dishes. It should always be grown in preference to the Common kind, as it has all its advantages, viz. it is easily cultivated, early, of vigorous growth, productive, and, as we have just mentioned, it is handsomer and more ornamental. Its chief merit, however, is that it cannot be confounded with any other plant; for although the least practised eye may be able to

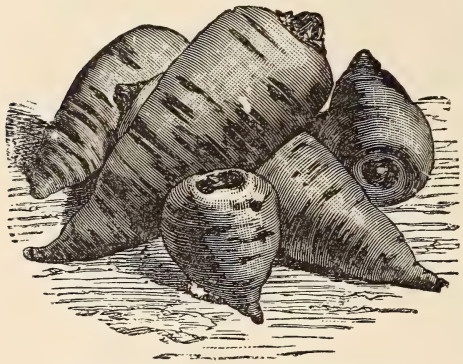
Curled Chervil.

distinguish the Chervil from other umbelliferous plants, there is a double security in cultivating a form of it for which no noxious wild plant whatever can possibly be mistaken.

TURNIP-ROOTED CHERVIL

Chærophyllum bulbosum, L. *Umbelliferæ. Cerfeuil tubéreux.*

Native of Southern Europe.—Biennial.—Plant hairy, with leaves very much divided, spreading on the ground, and violet leaf-stalks. Root much swollen, almost like a short Carrot, but generally smaller, with a very fine dark gray skin and yellow-white flesh; stem very stout and tall, 3 ft. or more in height, swollen below the joints, of a violet tint, and covered on the lower part with long whitish hairs; seeds long, pointed, slightly concave, light brown on one side, whitish on the other, and marked lengthways with three furrows of no great depth. Their germinating power lasts for only one year.



Turnip-rooted Chervil ($\frac{1}{2}$ natural size).

CULTURE. — The seed should be sown in autumn, in well-prepared, mellow, well-drained soil, care being taken to cover it very slightly. It is generally quite sufficient to press the soil down well after sowing. The seed-bed should be kept very free from weeds, as the seeds will not germinate before spring. The seed may also be sown in spring, if the precaution is taken of keeping it in the meantime between layers of sand in a box, basin, or other vessel, in which it should be placed as soon as it is ripe. If this is done, it will germinate immediately after it is sown, but if kept in any other way, it will not germinate until the spring of the following year. While growing, the plants require no attention at any time, except frequent waterings. About July, the leaves begin to lose colour and to dry up, which indicates that the roots are nearly matured. When the leaves are quite withered, the roots may be taken up, if the ground is required for other purposes, but it is better not to commence using them too soon, as they improve very much in quality by being allowed to remain in the ground some weeks or even months, provided they are in well-drained ground and safe from frost.

USES.—The roots are eaten boiled. The flesh is floury and sweet, with a peculiar aromatic flavour. They keep well all through autumn and winter.

Attempts have been made of late years to introduce into kitchen-gardens the culture of the Prescott Chervil (*Cerfeuil de Prescott*), a native of Siberia, which produces large edible roots like those of the variety just described, and is grown much in the same way. Its roots are longer and larger than those of the Common Tuberous-rooted Chervil, but their flavour is coarser and more like that of the Parsnip. The seeds grow easily, but should not be sown before July, or the plants will rapidly run to seed.

CHICKLING VETCH

Lathyrus sativus, L. *Leguminosæ.*

French, Gesse cultivée, Lentille d'Espagne, Pois carré. *German*, Essbare Platterbse, Weisse Platterbse, Deutsche Kicher. *Flemish*, Platte erwt. *Spanish*, Arveja. *Spanish-American*, Muelas.

Native of Europe.—Annual.—Stem winged, 16 to 20 in. high, maintaining an erect position with difficulty without some support; leaves compound, pinnate, without an odd one, the place of which is supplied by a prehensile tendril; leaflets four in number, long and narrow; flower-stalks slender, axillary, one-flowered, commencing to appear at the fifth or sixth joint of the stem. Flowers smaller than those of the Pea, but the same in shape, white, tinged with blue on the standard; pods broad and short, very flat, thick, and winged; seed white, somewhat variable in shape, triangular or square, broader and thicker at the side of the *hilum* than at the other side. The seed is sown in spring like Peas, in the place where the crop is to grow, and the growing plants require no special attention. The unripe seeds are eaten like green Peas; when ripe and dried, they may be used to make pea-soup. The use of this Vetch is very little understood in England, but we have heard that Spanish cooks make a nice dish of it.

CHICK-PEA

Cicer arietinum, L. *Leguminosæ.*

French, Pois chiche. *German*, Kicher-Erbse. *Italian*, Cece. *Spanish*, Garbanzo. *Portuguese*, Chicaro.

Native of Southern Europe.—Annual.—A rough-stemmed plant, almost always branching near the ground, and from 20 in. to 2 ft. in height. Stem hairy, as are also the leaves, which are compound, pinnate with an odd one, and with small, round, toothed leaflets; flowers axillary, small, solitary, white in the ordinary variety, and red in the kinds which have coloured seeds; pods short, much

swollen, hairy, like the rest of the plant, with a hard membranous lining, each containing two seeds, one of which is often abortive. Seed rounded, but flattened at the sides, and with a kind of beak formed by the projection of the radicle ; its appearance resembles that of a ram's head and horns, whence the specific name of the plant. Its germinating power lasts, like that of all other Peas, for at least three years.

CULTURE.—The seed is sown in spring, as soon as the ground is warm enough, preferably in drills 16 to 20 in. apart, and so that the plants will be 8 to 10 in. from one another in the drill. They are treated much in the same way as Dwarf Kidney Beans, and require no attention except the occasional use of the hoe. They bear dry weather better than almost any other kind of leguminous plant. In the south of France the seeds may be sown in February.

USES.—The ripe seeds are eaten either boiled entire or made into pea-soup. They are sometimes roasted and used as a substitute for coffee.

White Chick-pea.—This is the most generally cultivated variety, and, indeed, is the only one that deserves to be considered a table vegetable. There are a great many forms of it, differing slightly from one another in earliness and the size of the seed. In Spain some kinds of remarkable size and beauty are grown.

There are two varieties of the Chick-Pea grown in the East, one of which has red and the other black seeds. The former is very extensively cultivated in the East Indies, both as a table vegetable and for feeding cattle, and is one of the kinds known as Horse Gram, as it is very much used for feeding horses. The Black-seeded variety is more curious than useful.

CHICORY, or SUCCORY

Cichorium Intybus, L. *Compositæ.*

French, Chicorée sauvage, C. Barbe-de-capucin. *German*, Wilde *oder* bittere Cichorie. *Danish*, Sichorie. *Italian*, Cicoria selvatica, Radicchio, Radicia. *Spanish*, Achicoria amarga o agreste. *Portuguese*, Chicorea selvagem.

Native of Europe.—Perennial.—Radical leaves deep green, sinuated, with pointed, toothed, or cut lobes, and hairy, often red stalks ; stems from 5 to over 6 ft. high, cylindrical, downy, green or red, with spreading branches ; flowers large, blue, axillary, almost sessile ; seed generally smaller, browner, and more glistening than that of the Endive. Its germinating property lasts for eight years.

The Common Chicory, which is found in almost all parts of Europe in the wild state, has been used from time immemorial for salads, and also as a medicinal plant. When

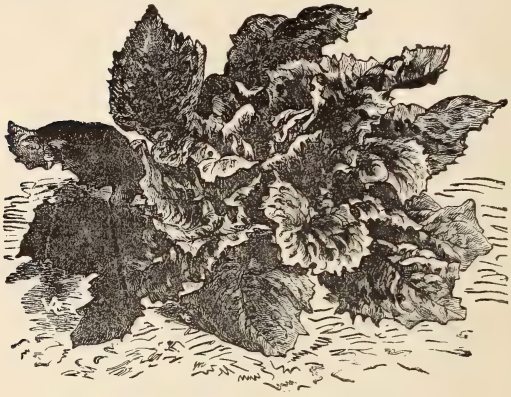
cultivated, its produce is increased in quantity and improved in quality, the leaves losing much of their natural bitterness. Forced in darkness, in winter, it forms the highly esteemed blanched vegetable known as *Barbe-de-capucin*. The large-rooted variety of it, treated in the same way, produces the vegetable known in Belgium by the name of *Witloof*.

CULTURE.—The Common Chicory is an exceedingly easy plant to grow. The seed is sown in spring, in the place where the crop is to stand, in drills, or, more commonly, along the sides of alleys, and is generally sown very thick, in order that the leaves of the plants may be closely crowded together. The leaves are gathered as they are wanted by cutting them near the ground with a sickle or a knife. They may be cut several times in the same year. It is a good plan to make a fresh sowing every year, clearing out the old plants which have fallen off in produce and are about to run to seed. In order to produce the *Barbe-de-capucin*, plants are employed which have been sown rather thinly in the open ground about the end of June. At the beginning of winter these are taken up, and the leaves are trimmed off about ½ in. above the neck of the root; then, in a dark cellar, or other place, the temperature of which is not too cold, sloping heaps are made, composed of alternate layers of sand or of soil taken from well-drained ground, and of Chicory-roots placed horizontally and with the necks of the roots pointing outwards, clear of the sand or soil, so that the leaves may grow freely. If the soil used is too dry, a slight watering will be necessary, after which the plants are left to themselves, and in about three weeks' time, if the temperature is not too low, leaves 8 to 10 in. long may be gathered.

Chicory, or Succory (blanched) (⅛ natural size).

A few years ago, in the neighbourhood of Paris, they began to use for this purpose the Large-rooted Chicory, the roots of which are allowed to attain the thickness of the finger before they are

forced. These roots, being very straight and regular in shape, are easily arranged in the forcing heaps, and the leaves are generally much larger and stouter than those of the Common Chicory.

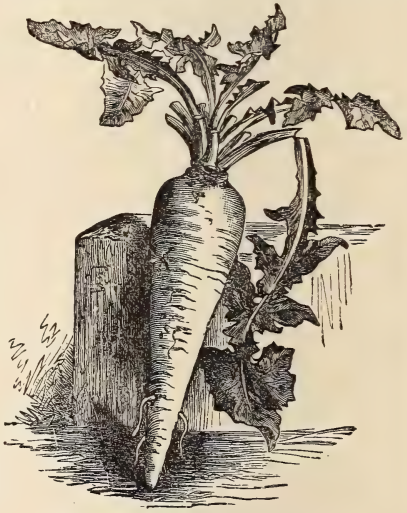


Red-leaved Lombardy Chicory.

USES.—The leaves are used as salad, either in their natural state or blanched, as described above. Cut into thin shreds, and mixed with oil and vinegar, they are very largely used in some countries as a seasoning for boiled beef.

Red Italian Chicory.—The merit of this variety consists in the variegations which sometimes cover the entire surface of the leaves and give a bronzed appearance to the green. On the blanched leaves these blotches are a fine bright red, and a very effective contrast. With this Chicory it is possible to have variegated salads in winter, as with the blotched Lettuces and Cos Lettuces during summer.

Large-rooted Chicory.—This variety is distinguished by the large size of the root, which is thick and straight, attaining a length of 12 to 14 in., with a diameter of about 2 in. below the neck. It is the kind which is employed for the manufacture of "Coffee Chicory." This is obtained by cutting the roots into thin slices, which are then roasted and ground. The plant is grown for this purpose chiefly in Germany, Belgium, and the north of France. There are two very distinct varieties of it, named the *Brunswick* and the *Magdeburg* Large-rooted Chicory.



Brunswick Chicory ($\frac{1}{3}$ natural size).

The *Brunswick* variety has very deeply cut leaves, divided like those of the Dandelion, and more or less spreading horizontally

while the leaves of the *Magdeburg* variety are undivided and stand quite erect. The latter is considered the more productive of the two. Its roots are longer and thicker, although not quite so regular. It is not unusual to find single roots of it which weigh from 14 to 17 oz., and which look very like dwarf White Sugar Beets, such as the German kinds, when they are grown very close together. As already mentioned, the Large-rooted Chicory is often employed to form the *Barbe-de-capucin.*

Magdeburg Chicory (⅛ natural size).

Witloof, or Large Brussels Chicory. — This plant may be considered as a sub-variety of the Magdeburg Large-rooted Chicory. Its principal merit consists in the width of its leaves and the great size of their ribs or stalks. When blanched in the way described farther on, it forms the vegetable which the Belgians call *Witloof,* as already mentioned. As shown in the illustration, this very much resembles a blanched head of Cos Lettuce in appearance.

Witloof, or Large Brussels Chicory (⅛ natural size).

CULTURE.—In order to obtain good specimens of *Witloof,* well-grown roots of the plant should be used; and to obtain these the seed should be sown in the open ground, in June, in drills 10 or 12 in. apart, selecting good, deep, rich soil for the purpose. The plants are allowed to grow on till the beginning of winter, without any attention except keeping the ground free from weeds, and watering when necessary. In the beginning of November, the roots (which by that time should have attained a diameter of from 1¼ to nearly 2 in.) are taken up, those which have divided or too narrow leaves being thrown aside, if any such are met with, as well as any which bear several heads. The leaves of all the selected

roots are then trimmed off about 1½ in. from the neck, and any secondary shoots that may appear on the sides of the roots are pinched out, the lower end of the roots being also shortened so as to bring them all to a uniform length of 8 to 10 in They are then ready for planting, for which a trench 16 to 18 in. deep is opened, and the roots are placed upright in it, about 1½ in. from one another; the necks of the roots will thus be about 8 in. below the level of the ground. The trench is then filled up completely with good, light, well-drained soil. If a speedy growth is desired, the surface of the trench, or of whatever portion of it is to be forced, should be covered with a layer of manure varying in depth according to the quality of the manure and the prevailing temperature, but never less than 16 in. nor more than a little over 3 ft. In about a month's time, the leaves will have attained their proper size. The manure is then taken off, the roots are dug up, and the blanched head is cut off with a portion of the neck of the root attached. Placing the layer of manure under the roots has not been at all satisfactory, the heads opening instead of remaining closed, from which it would appear that a heavy pressure is needed in order to induce the heads to grow into the right shape. The *Witloof* is eaten raw as a salad, and also boiled, like the Curled Endives.

Broad-leaved Chicory (⅛ natural size).

Broad-leaved Chicory.—This is a very different-looking plant from the Common Chicory, of which it is a variety obtained by successive sowings of seeds from selected plants. The leaves are broad, very large, undulated, and sometimes crimped, always more or less covered with short hairs, and often resembling those of the Green Broad-leaved Winter Endive in their form and arrangement. When the plant runs to seed, the flowering stems are exactly like those of the Common Chicory, so that it is very certain that this plant is a variety of it, and not a hybrid between the Common Chicory and the Endive, as some persons are inclined to think. We should be much more disposed to assign this hybrid origin to the Curled-leaved Chicory, described farther on.

Improved Variegated Chicory.—A form of the preceding variety, which has the leaves blotched and striped with red, or, in the case of plants grown in the open air, with brown, which changes to red if the plants are deprived of light. This very bright variegation is very pretty in a salad.

Curled-leaved Chicory.—This variety is curious from its leaves being very finely cut, slashed, and curled. It resembles an Endive to a certain extent. There is the more reason for supposing it to be a cross between the two species as it is extremely variable, the leaves being often nearly smooth, and it does not appear to be quite as hardy as the other garden varieties of Chicory.

M. Jacquin, sen., who has made assiduous and successful attempts to improve the Common Chicory, succeeded in establishing a certain number of varieties. None of them, however, we believe, are now in cultivation.

CHIVES

Allium Schœnoprasum, L. *Liliaceæ.*

French, Ciboulette, Civette. *German*, Schnittlauch. *Flemish* and *Dutch*, Bieslook. *Italian*, Cipollina. *Spanish*, Cebollino.

Native of Europe.—Perennial.—A plant growing in thick tufts. Bulbs oval, small, scarcely as large as a hazel-nut, forming a compact mass by the intertangling of the fibrous roots; leaves very numerous, slender, and of a deep green colour, resembling those of a grass, but hollow, like those of the Onion; flower-stems very little taller than the leaves, bearing small terminal clusters of violet-red flowers, which are usually barren. Chives are always propagated by division of the tufts. The best time for dividing them is in March or April. The plants are usually grown as an edging, and appear to do better that way than when grown in a bed. It is a good plan to take them up and replant them every two or three years, as this has the effect of freshening up the tufts. The leaves, when wanted for table use, are cut with a knife, and seem to grow more vigorously the oftener they are cut. They are used for seasoning, and are much grown in British gardens, more especially in the north.

Chives.

CLARY

Salvia Sclarea, L. *Labiatæ.* *Sauge Sclarée.*

Native of South Europe.—Perennial, but cultivated as an annual or a biennial.—An herbaceous plant, with the radical leaves very broad, oval-obtuse, broadly sinuated or toothed, woolly haired, gray-green, and crimped like the leaves of Savoy Cabbage. Stem very tall, quadrangular, branching in the upper part and bearing long spikes of white or lilac flowers in clusters of two or three; seed brown or marbled, smooth, and shining. Their germinating power lasts for three years. The plants do not run to seed until the second year from the time of sowing. After they have flowered, it is better to pull them up and replace them by young plants. The seed is sown in April, in drills 16 to 20 in. apart, or in a seed-bed, from which the seedlings are pricked out in May at the same distance from one another. During the summer hoeing and watering must not be neglected. In August, the first leaves may be gathered, and the plants will continue to yield up to June or July in the following year. The leaves are used for seasoning.

Clary ($\frac{1}{12}$ natural size; detached sprig, $\frac{1}{4}$ natural size).

CORIANDER

Coriandrum sativum, L. *Umbelliferæ.*

French, Coriandre. *German*, Coriander. *Flemish* and *Dutch*, Koriander. *Italian*, Coriandorlo. *Spanish*, Culantro.

Native of Southern Europe.—Annual.—Stem branching, 2 to over 2½ ft. high; radical leaves not much divided, with incised-toothed leaflets of a rounded shape; stem leaves very much divided, with linear segments; flowers small, whitish, in umbels. Seed generally united in pairs, presenting the appearance of a small seed-vessel of the Flax-plant. Each seed is hemispherical,

slightly concave on the side which joins the other seed, and lighter in colour than the outer and convex side, which is brown-yellow and marked with deep longitudinal furrows. Their germinating power lasts for six years. The Coriander likes a warm and rather light soil. The seed is sown in autumn or spring, and the crop comes in in summer.

Coriander.

USES. — The seeds form an important article of commerce. They are used in the manufacture of liqueurs, and in a great number of culinary preparations. Some writers say the leaves are used for seasoning, but this statement seems odd, as all the green parts of the plant exhale a very strong odour of the wood-bug, whence the Greek name of the plant.

CORN-SALAD. *Mâche.*

A great number of kinds of Corn-salad, before running to seed, form rosettes of tender edible leaves. The genus *Valerianella*, to which they all belong, is very rich in species, and these are not always easily distinguished from one another. They are, for the most part, small plants of rapid growth, flowering but once, their entire period of cultivation embracing the latter part of one year and the early part of the next. They generally run to seed in April or May, and the seed, falling to the ground as soon as it is ripe, seldom germinates before August. Amongst the most commonly grown kinds are *Valerianella olitoria* and *V. eriocarpa.*

COMMON CORN-SALAD, or LAMB'S-LETTUCE

Valerianella olitoria, Mœnch. *Valerianaceæ.*

French, Mâche commune. *German*, Feldsalat. *Flemish* and *Dutch*, Koornsalad. *Italian*, Erba riccia. *Spanish*, Canonigos. *Portuguese*, Herva benta.

Native of Europe.—An annual autumnal plant, that is, germinating from seed in autumn and flowering and seeding in the ensuing spring.—Radical leaves sessile, of an elongated spoon-shape, and of a slightly gray-green colour, with rather strongly

marked veins, and growing in pairs, placed cross-wise over one another, and forming a rather dense rosette ; stem angular, entirely herbaceous, forking several times, and bearing very small bluish white flowers, in terminal clusters at the extremities of the branches ; seed almost globular, slightly compressed, and gray in colour. Their germinating power lasts for five years. This is one of the commonest native plants, especially in cultivated ground, and in some countries large quantities of it are gathered amongst the growing crops of winter and spring wheat. The wild form, however, is now seldom used for kitchen-garden culture, and is only gathered where it is found growing naturally, having been superseded in cultivation by the improved kinds which we are about to describe.

CULTURE.—The seed is sown at the end of summer, or in autumn, in any kind of soil, and the plant produces leaves from October to spring, without requiring any attention or protection. Generally, small thick-set plants are preferred to those of coarser growth, the leaves of which become too large and long. Contrary to what is experienced in the case of most other cultivated plants, seeds of the Corn-salad sown the same year in which they ripened do not germinate so soon or so well as those which are kept for a year before they are sown.

This plant is grown to some extent by the London market-gardeners. The seed is sown for succession crops from August to October, the result being a supply from October till spring. There are two kinds grown —the Round and the Régence ; the former is considered the best for winter use, but it runs to seed earlier in spring than the latter kind, therefore the Régence is sown in October for a supply after the Round kind has run to seed. The land on which the seed is sown is of a rich character, and in many cases it is sown broadcast among winter Onions or some similar crop for which the land has been liberally manured and otherwise well prepared. No more preparation is needed beyond raking the surface before and after the seed is sown. In gathering, the plants are pulled up by their roots, washed, and sold in small punnets. Most growers save their own seed. For this purpose a bed is specially prepared, levelled, and made fine on the surface, after which it is rolled or otherwise pressed down firmly. Good plants from the general sowing are then selected and planted thickly, and the bed is afterwards kept free from weeds. In summer the seed which ripens is allowed to fall on the bed, after which the old plants are pulled up and the seed is carefully swept off the hard surface and placed in water to separate it from the soil, which sinks to the bottom. The seed is then dried gradually in the sun and put in bags in a dry place, and under such conditions it will retain its vitality perfectly for several years. Corn-salad is not considered of itself a paying crop, but when sown amongst other crops it takes up but little room, and therefore in such cases may be considered to be fairly remunerative.

Uses.—The whole of the plant is used as a salad, and an excellent and distinct salad it is, far too little used in England. This forms with the outer stalks of Celery one of the best mixed salads.

Round-leaved Corn-salad ($\frac{1}{3}$ natural size).

Round-leaved Corn-salad. — A very distinct variety, differing from the Common kind in having much shorter leaves, which are narrow at the base and widen upwards into an oval, almost rounded, blade. They also stand half-erect, instead of spreading on the ground, like those of the Common kind, and are lighter green in colour, with the veins much less marked. The plant is productive and of rapid growth, and is the kind which is almost exclusively grown by the market-gardeners around Paris. When sown in good soil in August, and kept carefully free from weeds, it is wonderfully productive.

Large-seeded Corn-salad.

Large-seeded Corn-salad.—A strong-growing kind, differing from the Common Corn-salad in the greater size of the plant, and also of the seed, which is nearly twice as large as that of the other kind. The leaves, like those of the Common kind, are comparatively narrow for their length, and are slightly gray-green, and marked with numerous secondary veins. This variety is very much grown in Holland and Germany.

Golden Corn-salad. —This variety probably sprang from the Round-leaved Corn-salad, which it resembles in size and habit, but differs from it in the

colour of the leaves, which are very light green with a pronounced golden tinge on the parts exposed to the light. The leaves are oval, broad, and very smooth. It is used for salads, and when mixed with the dark green varieties makes a pleasant contrast.

Étampes Corn-salad ($\frac{1}{3}$ natural size).

Etampes Corn-salad. — This variety is especially characterised by the extremely dark colour of its leaves, which, like those of the Common kind, are rather narrow and marked very perceptibly with veins; they are also often undulated or folded back at the edges. The whole plant forms a rosette somewhat more compact and stiff than of the Common kind, and the leaves are rather thicker and more fleshy than those of the other varieties. They bear cold weather remarkably well, and they have the advantage of losing their freshness less than those of any other kind while they are being brought to market—a valuable quality in plants which have sometimes to be sent to markets at a considerable distance.

Cabbaging Corn-salad.—A very distinct variety, with short, rounded, smooth, half-erect, stiff, and intensely green leaves, the veins of which are hardly visible. It forms a compact rosette, the heart of which is full and firm. It is, to all appearance, a less productive kind than the Round-leaved variety, but firmer, more compact, and much more agreeable to the taste in a salad. Like the preceding variety, it bears carriage well.

Cabbaging Corn-salad.

This is undoubtedly the same variety as that which was grown some years past under the name of Chevreuse Smooth-leaved Green Corn-salad.

ITALIAN CORN-SALAD

Valerianella eriocarpa, Desf. *Mâche d'Italie, Régence.*

Native of Southern Europe.—Annual.—This species is easily distinguished from the Common Corn-salad and its varieties by the much lighter colour and greater length of its leaves, which are slightly hairy, and somewhat toothed on the edges towards the base. Seeds more or less pale brown, flattened, convex on one side and hollowed out on the other into a deep channel, and surmounted by a sort of collar shaped like a twisted paper bag. Their germinating power lasts for four years. This variety is thought very highly of in the south of Europe, where it does not run to seed so soon as the Common kind, but in the neighbourhood of Paris it has the drawback of being somewhat sensitive to cold. Its culture and uses are exactly the same as those of the Common variety.

Italian Corn-salad ($\frac{1}{3}$ natural size).

Lettuce-leaved Italian Corn-salad.

Lettuce-leaved Italian Corn-salad.—Leaves spreading on the ground, broad, rounded, and a very peculiar golden tint. The

plant is larger and stouter than the ordinary Italian Corn-salad, and more suitable for southern than for northern climates.

Spoon-leaved Corn-salad.

Varieties of Corn-salad with variegated leaves have often been highly spoken of, but none of them have ever appeared to us to equal the good varieties of the green-leaved kinds. Variegation, as a rule, does not add to the value of a table vegetable, and it is almost always a sign of weakness of growth. Of these variegated kinds, one has leaves marbled with white, and another has the heart and the base of the central leaves of a bright yellow colour. These variegations, becoming more intense in hue after the first touch of frosty weather, have rather a pretty effect.

The **Spoon-leaved Corn-salad**, now nearly superseded by the Cabbaging Corn-salad, was distinguished mostly by its leaves being hollowed in the shape of a spoon or hood.

CRESS, or GARDEN CRESS

Lepidium sativum, L. *Cruciferæ.*

French, Cresson alénois. *German*, Garten-Kresse. *Flemish*, Hofkers. *Dutch*, Tuinkers. *Danish*, Havekarse. *Italian*, Agretto. *Spanish*, Mastuerzo. *Portuguese*, Mastruço.

Native of Persia.—An annual plant of very rapid growth.—The pungent flavour of its leaves has caused it to be used as a condiment from time immemorial, and its culture is so easy that it finds a place in the humblest kitchen-garden. The radical leaves are very much divided and very numerous, forming a straggling rosette, from the centre of which soon rises a smooth branching stem furnished with a few almost linear leaves. The flowers are white, small, and four-petalled, and are succeeded by roundish pods, which are very much flattened and slightly concave. The seeds are comparatively large, furrowed, oblong, and of a brick-red colour;

they have a biting taste and a garlicky flavour. Their germinating power lasts for five years.

CULTURE.—There is no plant more easy to grow than this. It may be sown at any time and in any kind of soil, with the certainty of having leaves fit to cut in a few weeks; only, during very hot weather, it is best to sow in a moist and shaded position, in order to obtain more tender and more abundant leaves. In summer it is a good plan to make successional sowings, as the plants run very quickly to seed. The seed germinates with very great rapidity. In a temperature of 10° to 15° Centigrade (or 50° to 60° Fahrenheit) it usually germinates in less than twenty-four hours. This rapid growth is sometimes utilised for the purpose of furnishing rooms with verdant foliage in winter, and to do this it is sufficient to sprinkle Cress-seed plentifully on wet moss or sand, or on a vase or anything else covered with wet moss or moist clay, and in a few days a mass of verdure will be produced, which has a very pleasing effect.

In the London market-gardens Cress is grown to a large extent, along with Mustard, in beds made on the floors of vineries, a portion being sown and a portion cut every other day. During February and March the floors of such Vineries remind one of a verdant pasture, so green and so healthy do the crops of Cress and Mustard in various stages of growth appear. After sowing, a good watering is given, and the beds are covered with mats until the seeds have germinated, when they are immediately removed. The Mustard and Cress are cut when they attain a height of 1½ to 2 in., a long-bladed knife with a crooked handle being used for the purpose. With this implement in one hand the operator cuts as much at a time as he can hold with the other, which is about as much as will fill a punnet; he then deftly takes the cut material up with both hands and places it in an upright position in the punnet. So precisely do practised hands perform this work, that one would almost imagine the Mustard and Cress had been sown in the punnets. During January, February, and March, Mustard and Cress fetch from 2*s.* to 4*s.* per dozen punnets, but later on they become much cheaper. Rape is often sold for Mustard. It is mild in flavour and, perhaps, equally wholesome; it is also stiffer, and keeps longer in good condition in a cut state than Mustard. On hot-beds out-of-doors, in temporary frames, and in warm moist borders, Mustard and Cress are grown in enormous quantities, some using as much as 500 bushels of seed in one season!—C. W. S.

USES.—The radical leaves are much used as a condiment, and for garnishing dishes, especially of roast meat. They are also used for side-dishes and in salads.

Common Garden Cress.—This form, which is most commonly grown, is a decided improvement on the wild plant. The leaves are larger, of a deeper green colour, and more abundantly produced.

Curled, or **Normandy, Garden Cress.**—In this variety the divisions of the leaves are finer and more numerous than in the

Common Cress.

Curled Cress.

Common kind ; they are also curled and more or less twisted on themselves, which gives the foliage a very pleasing appearance.

Extra Curled Dwarf Garden Cress.—A distinct kind, of compact growth, with leaves cut to the midrib forming lobes toothed and curled at the edges. By this and its greater pungency it may easily be told from the other varieties.

Extra Curled Dwarf Cress.

Broad-leaved Cress.

Broad-leaved Garden Cress.—This variety differs from the type in having the blade of the leaf entire, without any divisions

and merely notched here and there on the edges. The leaves are oval in shape, about 2 in. long, and about 1 in. broad. They have slender stalks and a somewhat irregular outline.

Golden, or **Australian, Garden Cress.**—This might be taken for a sub-variety of the Large-leaved Garden Cress, as the leaves are similar in shape and only differ in their colour, which is a pale yellowish green, and always so marked that it strikes even the most unpractised eye at once. These two varieties differ so much in the appearance of their leaves from the Common Garden Cress, that any one seeing them growing side by side before flowering might think they were plants of quite different species.

WATER-CRESS

Nasturtium officinale, R. Br. *Cruciferæ.*

French, Cresson de fontaine, C. de ruisseau, Santé du corps. *German*, Brunnenkresse. *Flemish* and *Dutch*, Waterkers. *Danish*, Brondkarsen. *Italian*, Nasturzio acquatico, Crescione di fontana. *Spanish*, Berro de agua. *Portuguese*, Agroião d'agua.

Native of Europe.—Perennial.—An aquatic plant, with long stems, which readily take root, and which even send out into the water white rootlets serving to supply the plant with nutriment. Leaves compound, with rounded divisions, slightly sinuated, and of a dark green colour; flowers small, white, in terminal spikes; seeds usually few, very fine, in slightly curved siliques or pods. Their germinating power lasts for five years.

Water-cress (⅓ natural size).

CULTURE.—The pleasant and pungent flavour of the Watercress, and also its well-known hygienic properties, have from time immemorial caused it to be highly esteemed for table use. The preference which the plant exhibits for moist positions and even running streams renders the cultivation of it rather difficult, so that most people are content to gather it where it grows naturally in brooks, ditches, or springs. In the neighbourhood of some large towns, however, it is cultivated

systematically, and usually very profitably. For this purpose a portion of a meadow or pasture field is selected which has a clear stream or rivulet running by or through it, and across this portion, from one side to the other, a number of large trenches are excavated. These are from about 16 to 20 ft. wide, and about 13 ft. distant from one another, and are so arranged that the water may run from one to another. This is managed by having a slight difference in the level of the trenches, so that the water may run out of each of them at the end opposite to that at which it flowed in. Thus the water does not finally leave the trenches until it has made a long serpentine course through all of them. After the soil at the bottom of the trenches has been properly dug and manured, the finest and strongest stems that can be selected are pricked in with a dibble. The water is then let into the trenches—just so much for a week or two as will cover the cuttings—and the plants are not interfered with until they have grown strong enough to allow the leaves to be gathered without injury. After the plants are well established, and growing vigorously, the leaves may be gathered all through the year, except in very frosty weather, when the trenches should be flooded and entirely submerged for the protection of the plants.

Some growers plant the cuttings in a specially prepared ditch, allowing the water to rise as the plants grow in length. When the plants have grown 4½ to 7 in. in height, they are pulled up carefully with their roots and dropped singly into other trenches that have been filled with water to about one-half their depth, some well-decayed cow-manure being also dropped in at frequent intervals. The plants, carried by the flowing water, collect at the lower end of the ditch in close touch with the manure, when they soon start into luxuriant growth. The water is then at its normal height.

In many cases sowing the seed will be found the best means of propagation. The bottom of a small shallow trench is carefully prepared for receiving the seed, which, being very small, is mixed with some dry earth or sand sown broadcast and slightly raked in. The soil is then cautiously watered and kept moist until the plants show their first leaves, when the water is let in, but only so much as will barely cover the plants. When a few inches high, the plants are pulled up in small tufts and planted in other trenches, into which water is admitted and kept steadily on a level with the tops of the plants, until the ditch is completely filled.

Plantations of the same kind, on a smaller scale, might be made anywhere where there is a sufficient supply of pure fresh water. It is not even absolutely necessary that it should be running water, if it can be renewed often enough to keep it clear and pure. Watercress has been grown almost without water, by planting it in tubs

half-filled with good soil and kept in a moist, shaded position, under which circumstances occasional waterings will suffice for the growth of the plants. This mode of culture, however, has its drawbacks, and all who attempt it are not equally successful.

Water-cress is said to have grown in a wild state on the banks of the Thames and other places near London for many years before its culture for market was attempted on anything like an extensive scale, and there being then little demand for it, the supplies from these quarters were sufficient; but as it gained popularity in France, Prussia, and elsewhere, so the demand for it in London also increased, and beds for its culture were formed at Springhead and Northfleet, near Gravesend, as far back as the beginning of the nineteenth century. Springhead Cress is still noted for its superior quality. Large supplies are now obtained from Waltham, Cheshunt, and other low-lying places near the Great Eastern Railway, and the annual amount realised by growers for London alone is very great. The space at Springhead allotted to Water-cress culture is about three acres in extent, and consists of a winding ditch varying in width from 6 to 20 ft. The supply of water is furnished by numberless springs of fresh clear water, which bubble out near the banks of the stream in various places. The water contains a good deal of iron, and on the sides of the Cress-beds, where it is somewhat stagnant, the Cress assumes a less healthy colour than that in the middle of the stream. The Cress-beds at Springhead lie in a warm sheltered valley; the sloping banks on both sides of the stream, which appear to be exceedingly fertile, are covered with fruit-trees, such as Apples, Plums, etc. The Water-cress is replanted yearly, generally in August and September, and sometimes in spring. Tufts of the roots are taken up and pulled apart, and planted in rows about 1 ft. apart, after which they are trodden or rolled down, with a view to induce the roots to take quickly. The water is just deep enough to cover the roots, and when fully grown the young shoots in summer form a miniature meadow of Watercress. Cutting is done three times a week, as much being cut at a time as the markets require.

Improved Broad-leaved Water-cress.

USES.—The Water-cress is such a well-known plant that a description of its uses is almost superfluous. At Paris, where the market is always very abundantly supplied with it, it is used for garnishing, in salads, and sometimes also boiled and minced, like Spinach. Serving fresh good Cress in liberal quantities with broiled meat or roast fowl should be more general in England.

Improved Broad-leaved Water-cress.—For some years past this variety has been a favourite in the Paris markets. The culture and uses are exactly the same as those of the Common Water-cress, but the leaves are much larger, more tender, and more pungent.

AMERICAN, or BELLE-ISLE, CRESS

Barbarea præcox, R. Br. *Erysimum præcox*, L. *Cruciferæ.*

French, Cresson de terre. *German*, Amerikanische Winterkresse. *Flemish*, Wilde kers. *Danish*, Winterkarse.

Native of Europe.—Biennial.—The leaves of this plant have some resemblance to those of the Water-cress, but the plant itself always grows on the dry land. If sown in spring, it forms during the summer a tolerably full rosette of compound leaves of a dark and very glistening green colour. In the following spring the flower-stems make their appearance, and bear rather long spikes of bright yellow flowers, which are succeeded by slender siliques or pods, containing small, gray, rough-skinned seeds, slightly flattened on one side and round on the other. Their germinating power lasts for three years.

American, or Belle-Isle, Cress ($\frac{1}{5}$ natural size).

CULTURE.—This is extremely simple and easy. The seed may be sown during the whole of the spring, summer, and autumn, in any kind of garden soil, and successional sowings are unnecessary, as there is no fear of the plants running to seed too soon. On the other hand, if the plant is easily grown, its produce is not so valuable as that of the Water-cress or the Common Garden Cress, as the leaves are always hard, and their pungent flavour is accompanied with a certain amount of acidity. The radical leaves are used for seasoning and garnishing.

The Winter Cress of English gardens is *Barbarea vulgaris*, R. Br. (*Erysimum Barbarea*, L.). Its culture and uses are precisely the same as those of the American Cress.

MEADOW-CRESS

Cardamine pratensis, L. *Cruciferæ.*

French, Cresson des prés. *German*, Wiesenkresse. *Spanish*, Berros de prado.

Native of Europe.—Perennial.—A wild plant, common in moist meadows and on the banks of rivers, etc. Leaves pinnate, somewhat like those of the Water-cress, but far less fleshy and often tinged with violet-brown ; stem erect, furnished with a few leaves cut into linear divisions ; flowers of fair size, rose-coloured or pale lilac, opening very early in spring ; seed small, oblong, irregular in shape, and brown. Their germinating power lasts for four years. This plant is not of much value as a table vegetable. There is, however, a double-flowered variety which, with its clusters of pale lilac blossoms, is pretty in gardens when winter has just ended. The leaves have a biting and pungent taste.

PARÁ CRESS

Spilanthes oleracea, L. *Compositæ.*

French, Cresson de Pará. *German*, Hussarenknopf. *Flemish*, ABC kruid.

Native of the West Indies.—Annual.—An almost creeping plant, with entire oval leaves, which are truncate at the base. Flowers in conical heads, without petals, and of a yellow colour, borne on the top of the stem ; seed very small, oval, flat, grayish, and covered with small round prominences. Their germinating power lasts for at least five years. The seed is sown, in the place where the crop is to grow, in March or April. The plants commence to flower in about two months afterwards, and continue to bloom all through the summer. In hot weather they require to be watered plentifully.

Brazil Cress (½ natural size).

USES.—The leaves mixed with salads impart a pungent flavour, and have the effect of stimulating the action of the salivary glands. This use of them is not common, and the plant belongs to the province of pharmacy rather than the kitchen garden.

Brazil Cress.—This plant appears to differ from the Pará Cress only in the brown tint of its stems and leaves, which also extends to the upper part of the flower-heads. The culture and uses of the two plants are exactly the same.

CUCUMBER

Cucumis sativus, L. *Cucurbitaceæ.*

French, Concombre. *German*, Gurke. *Flemish* and *Dutch*, Komkommer. *Danish*, Agurken. *Italian*, Cetriulo. *Spanish*, Cohombro. *Portuguese*, Pepino.

Native of the East Indies.—Annual.—A creeping plant, with herbaceous stems, flexible, angular from the first, rough to the touch, and furnished with tendrils. Leaves alternate, placed opposite the tendrils, angular heart-shaped, bluntly toothed, rough like the stem, dark green on the upper surface and gray underneath. Flowers axillary, on short stalks, more or less green-yellow, some male, others female, the latter placed on the top of the ovary, which becomes the fruit, and which is of some size before the flower opens on it. The plant continues to produce flowers in succession for a long time, and the intervention of insects or of man seems to be necessary to fertilise them. The fruit is oblong and more or less cylindrical, smooth, or bearing protuberances which end in a hard spine; flesh abundant and watery. Seed yellow-white, very flat, long oval, enclosed in three longitudinal compartments, which are filled with a pulpy substance, and are nearly as long as the fruit itself. Their germinating power seldom declines before the tenth year.

Culture. — The Cucumber is grown extensively in almost all parts of the world, and in warm countries is brought to perfection without the aid of artificial heat. In Great Britain, however, the case is different; and in order to secure a good supply of Cucumbers, even during the warmest seasons of the year, artificial heat is indispensable. Cucumbers are grown in a variety of ways—as in houses, pits, frames, etc., and occasionally out-of-doors. The best mode of culture is that of growing them in houses, which, if properly constructed, will yield a supply at all seasons of the year. Propagation is effected by seeds and cuttings. The best kind of house is that with a span roof, a pathway running through the centre, and a bed on each side. The size of the house must depend upon the demand. Small houses are, however, best for Cucumber-growing; and if two can be used for them and Melons alternately, it will be found much more convenient than having one large house. A house entirely devoted to Cucumber-growing all the year round must necessarily be larger than when it is only used for winter or spring crops —inasmuch as, having to keep up a continuous succession, fresh plantations must be constantly made; therefore the best kind of house is that with a bed on each side, as

before mentioned, planting the beds alternately as each set of plants becomes exhausted. A span-roofed house, from 15 to 20 ft. long and 10 or 12 ft. wide, will, if properly managed, afford a sufficient supply for most private establishments, unless they are very extensive. Houses with comparatively low-pitched roofs generally yield the best results, with least trouble from scorching or red spider. They should be built high enough to allow of head-room, but not higher than is really necessary, as low, close houses are most suitable. Heat produced by hot-water pipes is decidedly the best for giving warmth, as it is of a more humid nature than that produced by flues. There should always be sufficient piping to keep up the required temperature without being obliged to make the pipes intensely hot—the latter being productive of many evil results, such as scalding, red spider, etc. Evaporating pans, placed over the pipes, are of great assistance in keeping the atmosphere of the house in a moist state. Cucumbers may be successfully grown in low lean-to houses, with no other glass than that of the roof—the heat being supplied by means of a brick flue running round the house, and a stage consisting of rough wooden slabs or planks, supported upon brick piers or wooden posts, erected over the flue along the front of the house. The stage should be 3½ ft. from the glass, which will allow for 18 in. of soil, and 12 in. for the plants to grow before reaching the trellis, supposing the trellis to be 12 in. from the glass. If the front of the stage be boarded up, a good bottom-heat may be secured.

Bottom heat is considered by many to be indispensable in Cucumber-growing; this, however, has been proved to be a mistake, and we have often seen the best Cucumbers grown without it. That plants are benefited to a great extent by the use of bottom heat judiciously applied, we do not for a moment dispute; but still it is not absolutely necessary, except in the case of early Cucumbers grown in pits and frames. Where, however, it is applied, it must be done with judgment, for there are often crops of Cucumbers ruined by an excessive bottom heat. Stable manure is frequently used to supply bottom heat to Cucumbers; and where it can be properly regulated it is the best. As the heat gradually declines, the roots descend into the decaying manure and draw therefrom a vast amount of nourishment to support the heavy crops of fruit they carry. A considerable amount of labour in root-watering is also saved. In private gardens hot water is much cleaner and perhaps gives less trouble, and where the pipes are laid in a tank, and the tank at intervals supplied with liquid manure, good results can be obtained.

Winter and Spring Cucumbers.—For this crop many cultivators obtain plants by means of cuttings, with the view of getting fruit quicker than from those raised from seed. There can be no doubt that if cuttings be put in at the same time as seeds, the cuttings will make plants capable of bearing fruit earlier; but they will not continue in a bearing condition so long, nor produce such good fruit, as healthy seedling plants. Where any particular kind is grown, and it is desirable to keep it true, propagation by cuttings is the only sure way of attaining that object; but as a rule seedling plants are the best. Where, however, cuttings are preferred, they should be put in about ten or twelve days before they

are required to be planted out. The best way is to stop the plants from which the cuttings are to be taken a week or two previously; they will then send out side-shoots, which should be taken off with a joint of the older wood attached to them, and inserted singly in small pots well drained and filled with a compost of leaf-mould, loam, and sand, in equal parts. If inserted close to the side of the pot, they will strike sooner than if placed in the centre. The pots should then be plunged in a bottom heat of 70°, have a hand-light or bell-glass placed over them, and be shaded from the sun; and if kept well watered and sprinkled overhead, they will be sufficiently rooted in a few days to allow of the hand-lights being taken off; thus the plants will be gradually inured to the light and sun, which treatment will effectually prevent them from becoming drawn. If the plants be likely to become pot-bound before the bed is ready to receive them, they should be shifted into larger pots, otherwise they will be materially injured. In order to obtain a good supply of Cucumbers during the winter and spring, it is necessary to sow sufficiently early to allow of the plants becoming strong and in a fruit-bearing condition before the short dark days arrive; strong plants should therefore be in readiness for putting out not later than the end of September. If plants be obtained from cuttings, they will require to be put in the second or third week in that month; if from seed, a week or ten days earlier.

Many cultivators soak their Cucumber seeds in water for a few hours previously to sowing; and in the case of old or very dry seeds it is an excellent plan, inasmuch as it softens the seeds and causes them to germinate quicker than they otherwise would. There are various methods of sowing: some growers sow single seeds in small pots, and thence turn them out into the beds; others sow a quantity of seed thickly in pans or large pots, and transplant them. We have found it a very excellent plan to put two or three seeds into 48-sized pots half filled with light leaf-mould and sand, just covering the seeds, and when they are up select the strongest of the plants to remain, and pinch the others out. By the time the remaining plants have made a pair of rough leaves, roots will frequently be seen pushing from the bases of the stems. The pots should then be filled up with soil to within half an inch of the rim, into which their roots will quickly penetrate, and thereby strengthen the plants, and afford them more room to grow without disturbing the roots, as would be the case in re-potting or transplanting. In whatever way they may be sown, they should, if possible, be placed in a gentle bottom heat, and kept moderately moist until they are up, when they must be placed near the glass, or where they can obtain plenty of light and sun, in order to keep them dwarf and stocky. Whilst the plants are becoming established the bed should be prepared for planting, bottom heat being provided by means of hot-water pipes or fermenting material. A layer of good thick turves should be laid on the bottom of the bed, grassy side downwards; upon this lay the soil in a ridge along the centre of the bed, and when it is sufficiently warm the plants may be turned out into it 2 ft. apart, planting them 1 or 2 in. deeper than they were in the pots, and afterwards watering them copiously with tepid water. A good brisk heat should be kept up until the

plants get well established in the beds—say 65° by night and 70° by day, allowing the glass to rise 10° higher by sun-heat, with a bottom-heat of 65° to 70°. After the plants begin to root freely into the soil in the bed, air should be admitted in the morning on every favourable opportunity, closing early in the afternoon in order to secure all the sun-heat possible. No more fire-heat than is absolutely necessary to keep up the required temperature should be used, inasmuch as all plants thrive much better under the influence of solar than of artificial heat. The subsequent treatment consists of training the leaders of the plants up the wires and stopping them when they reach the top. This will cause them to send out side-shoots all the way up the stem, which shoots should also be stopped at the second or third joint; these shoots always show fruit, but only one or two should be left on each plant at first, and more as the plants get older and stronger. The stopping of the shoots must be continued at every second or third joint from the last pinch, and also thinned out when needful. Crowding of the wood and foliage should always be avoided. The object of planting 2 ft. apart at first is only to secure a good crop of Cucumbers early by taking one or two fruits off each plant as soon as possible; but this space is too little ultimately for each plant, and when it becomes necessary, every alternate plant may be removed to give the others more room. Watering must be attended to regularly. The bed should be kept moist, and when water is given it should be a thorough soaking till it runs out at the bottom of the bed, and should always be of the same temperature as that of the soil. Syringing in the morning and afternoon must also be attended to, and more or less air should be admitted according to the state of the weather. The roots should be top-dressed every two or three weeks with a little fresh soil. If these simple directions be carried out, a supply of Cucumbers during the winter and spring will not be found a difficult matter. The Cucumber is an easy plant to grow; unlike the Melon, the fruit is not wanted ripe, but only when half swelled; and the way to obtain it is to keep the plants in a healthy growing state.

Cucumbers in Pits and Frames.—Where hot-water pits are employed for growing winter Cucumbers, it is a good plan to apply a thick lining of fermenting material round the pit; also a covering of mats or other warm material over the glass during the night; by these means less fire-heat will be required, and the plants consequently kept in a healthier condition. To train Cucumbers, pieces of wire trellis-work should be fitted in each light about 1 ft. from the glass, the bed containing the plants being about 8 or 9 in. below this, which will afford greater facility for applying top-dressing; whereas if the ordinary mode of pegging down be adopted, top-dressing cannot be given without injury to the foliage. The greatest objection to pits for winter Cucumbers is the inconvenience of attending to the plants in severe weather; and plants are frequently allowed to run wild and get dry at the roots, in consequence of not being able to take off the lights when there is a continuance of frosty weather. Where there is no other convenience for growing Cucumbers in winter, a few plants may be put into large pots and placed in the corners of a warm house, such as a Pine or plant stove. The pots should be well drained and

filled three parts full of compost, adding a little at a time, as the plants require it, until the pots are full. Plenty of water must be given them, without causing the soil to become sodden, and when they are in bearing, occasional soakings of manure-water will be beneficial in keeping them in a healthy state.

Summer and Autumn Cucumbers.—Plants put out in September will, if properly treated, continue in bearing until May or June; therefore, to have plants ready to succeed them, a sowing should be made early in April, and grown either in houses, pits, or hot-beds, whichever is at hand; these will generally continue in bearing until August, by which time plants that have been put out in cold frames, such as those in which Potatoes have been grown, will be in bearing, and these, if liberally treated, will give a supply far into the autumn. They will, however, require to have linings applied, and be covered up at night when the cold nights set in. If thus treated they will last until late in October, by which time those planted for winter will be progressing towards fruit-bearing. Where a hot-water pit can be spared, a few plants may be put out in July or August, to give supplies during the early part of the winter.

Growing Cucumbers on Hot-beds.—Though hot-beds have been superseded to a great extent by hot-water pipes, they still occupy a place in gardens, especially in those of moderate extent, and are often very serviceable as Cucumber and propagating frames combined. A moderate and steady temperature is what is required, and this can be secured in a well-made hot-bed for six months. The materials required for a lasting hot-bed are stable litter and leaves in equal quantities; in the absence of leaves, use half-decayed hot-bed manure, refuse turf-choppings, or any other materials likely to moderate the fermentation of the stable litter—a material to be had in most establishments.

The first consideration is the choice of a site for the bed, which should always be in a dry and sheltered situation. Nothing extracts heat so rapidly as cold winds; indeed, where a hot-bed is made up annually, it is better to have it sunk two-thirds in the ground. It would be preferable, in fact, to have it wholly in the ground, but as the bed will settle down at least one-third of its height during the summer, the frame would get below the ground-line, which would be inconvenient. For a frame 9 by 5 ft. the pit would require to be 14 ft. long and 10 ft. wide; and if the bed were intended to last eight or nine months it should be quite 4 ft. deep—which, allowing one-third of the bed to be above ground, would give a total depth of 6 ft. of fermenting material. If the pit be double-boarded with strong rough deal, so as to form a 2-in. cavity all round between the earth and the sides of the bed, the heat will last a considerable time longer, as the cavity prevents the bed from being robbed of its heat by the cold earth. Another advantage of having a pit for the bed is that the latter is made with greater facility, for it requires a skilled hand to build up a compact and permanent hot-bed on the surface of the ground. Whatever kind of site is chosen, the next step is to have the materials placed conveniently near. These may be thrown roughly together the first time, sprinkling plenty of water upon them if they be at all dry. In a week or ten days the heap will usually be found to be heating

violently, when it should be turned over again, taking care to mix the litter thoroughly, adding more water if required. A week or so later it will want another turning, which as a rule ought to be sufficient to bring it into a fit condition for making up into a bed, even though it be heating strongly, for the temperature will subside a good deal after the materials are well trodden down. Where the hot-bed is the only accommodation, the seed, of course, cannot be sown till the bed is ready; but where there is a hothouse or pit, it is by far the best to sow the seed about the time the first preparations are made for making the bed; and when the bed is ready the plants will be strong and fit for planting. The seed may be sown in small pots, well drained, and the seeds covered with about ¼ in. of fine soil, and the pots, if possible, plunged in a bottom heat of 75° or 80°, with a moist atmospheric heat of from 65° to 70° at night, and 75° to 80° by day. The seeds should not be watered for a day or two after planting, when they should be well soaked; and from this time forward the soil about the roots of the plants should never be allowed to get dry, nor wet enough to become sour. When the plants are up they should be placed near the glass, to keep them strong and stocky, and should be planted out before they become pot-bound.

In preparing the bed for planting, the bottom of the frame should be covered with turves, grassy side downwards; on the top of these lay a ridge of soil the whole length of the frame. This should afterwards be levelled up, as the plants root out in both directions. Frequent soilings are an evil in hot-bed culture, for such operations cannot be performed without disarranging the foliage and injuring the plants. The bed being prepared, and presuming the bottom heat to have subsided to about 75° or 80°, the plants should be planted, one in the centre of each light. If not done before, they should at the same time have their tops pinched off above the second or third leaf. After planting, with the assistance of linings, in the shape of stable litter and a careful economisation of sun-heat, the bottom heat may be kept at 70° at least, and the top heat at 70° at night, and 80° or 85° with sun. In very bright weather a shading of thin canvas should be rolled over the frame during the hottest part of the day, but shading should not be resorted to more than can be helped. Air must be admitted at all times, and even in severe weather the sashes should be raised the thickness of a label to let the steam escape. The bed should be kept moist, but not sodden, and the plants should be sprinkled every afternoon in bright weather with soft, clean, tepid water. Under this treatment they will soon start into growth by sending out two strong leaders below where they were pinched. One should be trained towards the back of the frame and the other towards the front, and when they have come within about 1 ft. of the sides of the frame they should be pinched again, which will cause them to throw out laterals, showing fruit in all probability, which, with the exception of three or four on each limb, should be picked off and the laterals stopped one joint beyond the fruit. If the foliage be large and vigorous, it will perhaps be found advantageous to cut out some of the laterals altogether. It is much better to thin out the foliage and wood frequently than to let the plants get overcrowded, and then cut out a great

quantity of wood at one time. After this the training of the plants consists in laying the shoots out, so as to cover the bed, stopping them regularly, and disposing of them generally so as to secure the greatest amount of light and air possible to every leaf. The plants should not be allowed to bear too heavily, if expected to keep up the supply for any length of time. When cropped moderately, and the fruit cut as fast as it is ready, the plants bear continuously from April to November.

Soil and Manure.—A great depth of soil is unnecessary for Cucumbers; indeed, it is to be avoided, for they will succeed far better if they be planted in a little soil at first, and receive frequent top-dressings afterwards. For planting, 8 or 10 in. of soil is quite deep enough, if the bed receive slight dressings of stable manure mixed with soil to keep the plants in a vigorous state of health. Good turfy loam mixed with rotten manure is the best material in which to plant them, but the dressing should be of a richer nature. Many people use a quantity of peat mixed with the loam for winter Cucumbers; others use leaf-mould, but it is too light: the plants thrive well in it, but do not last so long nor fruit so freely as when grown in more holding soil. Cocoa-nut fibre refuse is highly recommended by some as a good dressing for Cucumber beds; but stable manure is by far the best kind of surfacing, and may be applied fresh from the stable, and if a little old mortar or brick rubbish be mixed therewith, it will be better still. Weak guano-water is the best kind of stimulant to apply to Cucumbers; other kinds of manure-water are said to affect the flavour of the fruit. Abundance of water is at all times necessary to Cucumber-plants growing under advantageous circumstances.

In Market-Gardens.—During summer the long ranges of pits and frames in market-gardens devoted in winter to the production of tender culinary plants are applied to Cucumber culture, and from these are cut thousands of fruits weekly. Indeed, few frame crops pay better than Cucumbers where they succeed well, and therefore every frame that can possibly be spared is planted with them. One grower at Fulham has a field of frame-ground, containing many ranges of frames with from 800 to 1,000 ordinary sashes, in summer entirely devoted to Cucumbers. From this field are sent to market weekly during the summer from 200 to 220 dozen fruit. Two or three men are usually kept at work in these frame-grounds, and on three days of the week (Monday, Wednesday, and Friday) they are employed in cutting fruit for market, and on the other three week-days they are busy stopping and regulating the shoots of the Cucumbers, watering, etc. Should any young fruits exhibit a tendency to become crooked, they put them into cylindrical glasses open at both ends. These glasses are about 12 or 15 in. long, and $1\frac{1}{2}$ or 2 in. in diameter, and several thousands of them are employed in one large frame-ground, as one good and straight Cucumber is worth nearly a dozen small and deformed ones. The crooked ones are disposed of for pickling. Should any "nosed" fruits, as they are termed, or such as have swelled at the point, be found, which occurs late in the season, a piece of string is tied round them, and they are left to ripen, as such fruits are certain to contain good seed. When the seed-fruits become yellow and are cut, they are

placed under sashes or on boards exposed to the sun, so that the seeds get thoroughly ripe and hard before being separated from the pulp.

The first sowing to supply plants for growing in frames is made in little punnets or flower-pots, early in the year, which are placed in hot manure frames. When the seeds germinate and are fit for potting off, two plants are potted into a 6 in. pot, and the whole replaced in the frames, keeping them near the glass. As soon as the frames to be planted can be spared, they are moved aside, and trenches cast out 5 ft. wide and 2 ft. deep, and firmly filled with stable litter. Over this some soil is placed, and the frames set on again. Another sowing is generally made to succeed the first one; but, as a rule, there are seldom more than two sowings made, and the second is only sown because all the frames are not empty at one time to be filled by the first sowing. When the heat is at a proper temperature for planting, a little more soil is introduced into the frames, and one potful (containing two plants) is planted under each sash, and one of the plants is trained towards the front of the frame and the other towards the back. The sashes are then put on and all is kept close for a few days, and, if need be, a little shading is also given by strewing some litter over the glass. Afterwards, until the plants have fairly begun to grow, no more ventilation is given than is necessary to prevent scorching in the case of bright sunshine. For several weeks after having been planted they are covered up at night with litter, removing it next morning; indeed, this covering is not discontinued until the month of June. When the plants have grown sufficiently to come into bloom, they are most attentively looked after in the way of regulating the growths, pegging them down, and stopping the lateral shoots at the joint beyond the embryo fruit, and preventing an accumulation of superfluous growths. Throughout the day they are allowed to have plenty of air during the summer, but it is all taken off at night; in the morning the sashes are tilted up a little, and as the heat of the day increases they are still further opened.

Water is given in the morning abundantly to those requiring it, whilst those that are not dry have simply a sprinkling overhead. It is cold water from the tap that is entirely used, and doubtless that is the greatest drawback to Cucumber growing with which the market-gardener has to contend, as where one or several acres are covered with frames, it would be almost an impossibility to make tepid all the water that would be required. Large hogsheads, however, are sunk here and there about the frame-ground, and brick or cement tanks are frequently used for containing water, with which they are filled for the next day's use. Guano-water is sometimes given during the summer-time, being applied through a fine rose overhead. This application is not only useful as a stimulant, but when given overhead has been found to be of material benefit in destroying or preventing red spider, as well as invigorating old plants. In reference to woodlice, toads are put in the frames to destroy them. Cucumbers require sunny weather to set well, and in dull wet seasons they do not thrive well, especially in the earlier part of the year. Should the summer be hot and bright, the sashes are shaded a little, and this is done by strewing some rank litter over the glass; but many market-gardeners, by way of economy of labour, paint

the sashes with whiting. By August the plants are getting exhausted; therefore careful attention is paid to thinning out old and bare vines, and encouraging young wood by means of stimulants, in the way of manure-water and coverings from cold; and in this way they last till September. No fruits are saved for seed until August, for if left sooner they would materially weaken the crop of marketable fruit. Until August, Cucumbers are liable to red spider, thrips, green fly, mildew, canker, and various other diseases; the only remedy being that of keeping the plants in as vigorous growth as possible. When mildew attacks the Cucumber it is generally the result of insufficient ventilation and too low a temperature. When it does appear, dusting thinly but evenly with flour of sulphur through a piece of muslin cloth is the only cure. Thrips are the most terrible of the insect enemies which attack the Cucumber; for these, and also for green fly, which is sometimes troublesome on the young growths, fumigating with Tobacco is usually resorted to; but the foliage of the Cucumber is so tender, especially when forced, that fumigation, unless done very carefully, is a cure which is often worse than the disease, and should never be attempted by the inexperienced.

Cucumbers in the Open Air.—Market-gardeners in the neighbourhood of London grow but few Cucumbers in the open air. Many have attempted it, but most of them have now abandoned it, the result not having proved very satisfactory. Where, however, it is carried on, they are grown under glass and hardened off and planted out 6 ft. asunder and 10 ft. row from row, and hand-glasses are put over them. When they begin to grow, the ground is well mulched with straw, to keep the earth moist and the fruit clean. Due attention is paid to their after-culture in the way of stopping, thinning, etc., and in some cases fairly good results are obtained. In one or two counties, the soil and climate of which seem unusually well adapted to their growth, large quantities are grown in the open air for the London markets; from such sources there are said to be sent to London not less than 600 tons a week during what is termed the Cucumber season. Of these upwards of 100 tons have been known to be sent to Covent Garden in a single day. In good Cucumber-growing localities the seed is sown about the beginning of May, where the plants are intended to grow, in rows some 4 ft. apart, and the plants stand nearly 2 ft. asunder in the row. In favourable seasons they soon push into active growth and cover the ground with vines, which during the latter end of May, the whole of June, and beginning of July, spread in all directions and come into bearing. During their growth, weeding and thinning their superfluous shoots are well attended to, and if the plants should not entirely cover the ground, or wherever blanks occur, Mangold-Wurzel is planted in the vacant spaces. About 4 yards apart are also rows of Onions, set early in the spring, which, being allowed to run to seed, serve in some measure both for shade and shelter. Where Onions are not used for this purpose, Rye, sown in the autumn, 4 or 5 yards apart, and cut as soon as the vines cover the ground, is employed instead: Peas are also sometimes used for the same purpose. In this way the ground is made to produce two or three kinds of crops at the same time, and if one should happen to fail, one or more of the others, as the case may be, takes its place. By the middle of July or

earlier, according to the season, the crop is ready for a first gathering, and from that time to the end of September fruit varying in length from 10 to 12 in., green and solid, though sometimes unshapely, is continually being cut.

GHERKINS.—These are extensively cultivated in London market-gardens, some growers frequently gathering from 18,000 to 20,000 fruit in one day. The seed is sown in May in rows, where the plants are to remain, in well-manured land. The rows are usually about 9 ft. apart, and the plants, which are thinned out when sufficiently advanced to admit of the strongest being discerned and left, allowed to stand 6 ft. apart in the rows. The after-treatment is exactly the same as that practised in the case of outdoor Cucumbers, except that the shoots of the Gherkins are allowed to grow unpinched. The fruit is gathered when about the size of a man's finger, placed in bushel baskets, and sent direct to the pickle manufacturers. A good place for Gherkins, and one often devoted to them, is the alleys between the rows of spring-sown Cabbages or Radish beds. The alleys are dug over, the drills for the seeds opened in the morning, and the seeds are sown in the afternoon when the ground is warm. When the Radishes or other crops are cleared off the intervening beds, the latter are dug, and a line of Cauliflowers or French Beans is planted along the centre of them, or sometimes two or three lines of Lettuces are put in. Some sow the Gherkins on an open quarter in patches of three or four seeds together, in rows about 5 or 6 ft. apart, and 3 or 4 ft. asunder in the row. Hand-glasses are then placed over the seeds, and when the young plants have come above ground, abundant ventilation is given until they show flower, when they are fully exposed. In most cases, however, they are raised in frames and transferred to the open ground in June, and in this way they fruit earlier and usually give less trouble and better results.

USES.—Cucumbers are eaten raw, boiled, or pickled. They are very good as a vegetable in the hands of a good cook, but are not often enough treated in this way in England.

The varieties of Cucumbers are extremely numerous, and the designed or accidental crossings of different varieties are still producing new ones. We shall confine ourselves to the description of the kinds which are most distinct and most valuable for cultivation.

Early Russian Gherkin ($\frac{1}{3}$ natural size; detached fruit, $\frac{1}{2}$ natural size).

Early Russian Gherkin.—A truly miniature Cucumber, with a slender stem 20 in. to 2 ft. long, and small, bright green leaves. It is perfectly well adapted for frame culture, each plant producing from six to eight fruit, which are short,

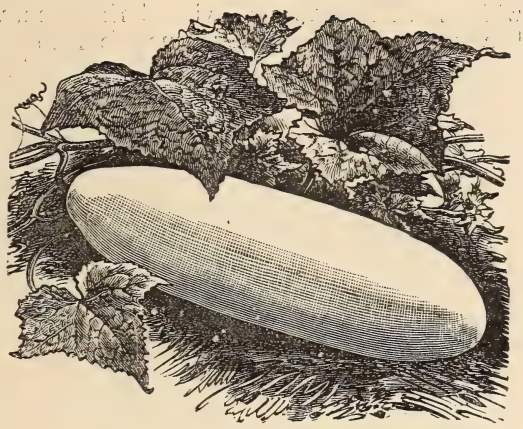
Brown Netted, or Khiva, Cucumber ($\frac{1}{4}$ natural size).

egg-shaped, yellow, smooth, and a little larger than a hen's egg. This variety, which is the earliest of all, ripens fully in less than three months, and does not require any pinching or stopping. The flesh of the fruit is not very thick, and is slightly bitter, but its remarkable earliness makes some amends for these trifling defects. In Russia there are many varieties of it, the earliest of which, generally producing but one fruit to each plant, is said to complete its entire growth in ten or eleven weeks.

Brown Netted, or Khiva, Cucumber.—As the very early small-fruited Cucumbers grow better in Russia than any other kind, a great many distinct forms of them are cultivated in that country. They are not all so well known in France. We shall, however, notice, next to the preceding variety, which is remarkable for its extreme earliness, another kind, which, although coming very near it in some respects, is strikingly distinct from it in the colour and appearance of the skin of the fruit. When ripening, the fruit of this variety does not take on the yellow tint common to a great number of other varieties of Cucumbers, but its skin turns brown, intersected by numerous lines

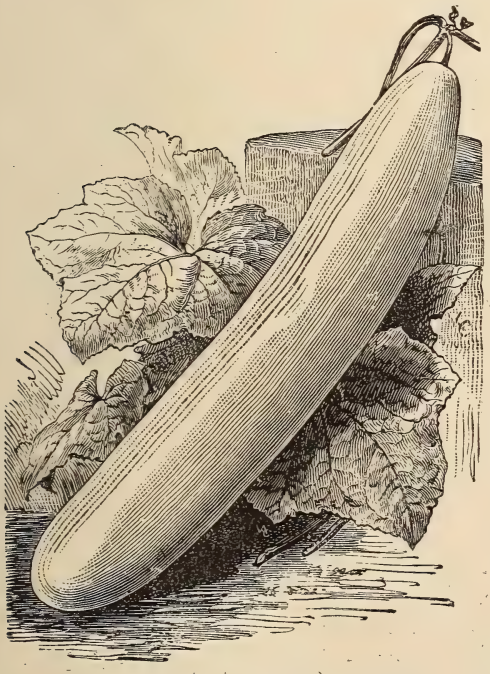
Long Turkish Cucumber.

of a paler hue which cross one another, giving it the appearance of being cracked. The fruit is something larger, and the plant stronger, than in the preceding variety, but not quite so early.



Early White Cucumber.

Long Turkish Cucumber. — A very vigorous grower, with leaves of a dark green colour until the fruit has ripened. The fruit is long, slightly curved, and measures 12 to 15 in. in length and between 2 and 3 in. in diameter. It is light green when young and turns to dark yellow as it ripens and then to brown. When ripe, the skin is marked with tiny white lines, resembling that of the Russian Brown Netted Cucumber. It is a very productive variety, a plant yielding generally five or six beautiful fruit.

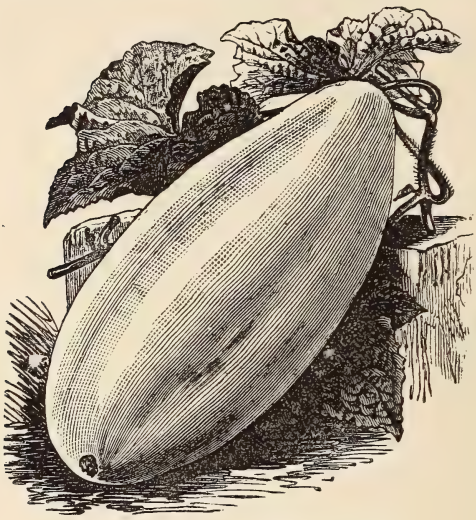


White Parisian Long Ridge Cucumber.

Early White Cucumber. — A variety with elongated, almost cylindrical fruit, nearly three times as long as broad, at first pale green, but turning, as they ripen, to a porcelain-white. The fruit ripens early, but considerably later than that of the Early Russian Gherkin.

White Parisian Long Ridge Cucumber.—This splendid variety produces smooth fruit, of regular cylindrical shape, as much as 20 in. in length by 3½ to 4 in. in diameter, all

white from first to last, with dark green, vigorous, and abundant leaves. The plant can produce four to five Cucumbers if grown in substantial soil. Although not a hothouse variety, in France it succeeds much better and produces finer fruit grown in that way. In beauty of fruit it excels all the other White Cucumbers.



Bonneuil Large White Cucumber.

Bonneuil Large White Cucumber.—This Cucumber, which is almost always grown in the open ground, is quite distinct from all other varieties. The fruit instead of being cylindrical, is ovoid in shape, swollen about the middle, and, moreover, very perceptibly flattened from end to end in three or four places, producing the same number of more or less rounded angles. It is very large, not unfrequently attaining the weight of four and a half pounds. It is at first of a pale green colour, and gradually becomes white as it increases in size. This is the Cucumber which is most generally grown about Paris for the perfumers, who use large quantities of it in their manufactures.

Early Yellow Dutch Cucumber ($\frac{1}{8}$ natural size).

Early Yellow Dutch Cucumber.—Plant usually branching, with rather slender stems. Leaves of a light green colour, and with well-marked angles; fruit longer and later than that of the Early Russian variety, but still well adapted for forcing. At first yellow-green, it becomes slightly orange-yellow when quite ripe. There are usually only two or three fruit on each plant.

Half-long Green Cucumber.—A vigorous half-early plant with light green stem and large leaves. The fruit is rather spiny;

green striped with yellow when young or yellow at maturity, when it measures about 9 in. long and 2½ in. in diameter. It is much grown, and very productive.

Long Green Cucumber.—A rather large and vigorous-growing plant. Fruit slender and narrowed like that of the Early Yellow Dutch variety, but still longer and more pointed at both ends, and covered with very numerous and prominent spiny excrescences. It remains dark green in colour until ripe, when it turns a brown-yellow. The flesh of this variety is thick, firm, and crisp, on which account it is highly valued for use in salads before it is ripe, generally when only half or three-quarters grown.

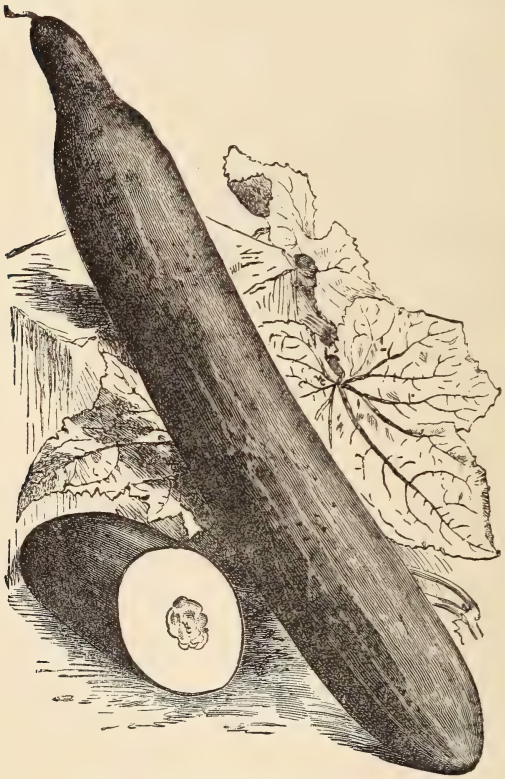
Fournier Long Green Cucumber.

Green Giant Ridge Cucumber.

Fournier Cucumber.—An early Cucumber with slender stem and pointed leaves. The fruit measures an average 16 in. in length and between 3 and 4 in. in diameter at the lower end, which is thicker than the end near the stalk. The colour is a vivid green. The fruit is spiny when young, and when ripe is quite smooth. It is vigorous, early, and productive, and well suited for the open culture, though better grown on a hot-bed. It keeps its

colour and crispness long. The flesh is thick, and the seed space not large.

Green Giant Ridge Cucumber.—A fine and very productive variety, which may in favourable conditions be grown in the open, though in the climate of Paris it succeeds better in hot-beds. This, we may add, is the case with all Cucumbers, except the Gherkins. The leaves are fairly large and strong, and the fruit more than 15½ in. in length. Green when young, they gradually become yellow as they get ripe. The skin is rough with only a few spines and generally straight and well-shaped. It may be recommended for the kitchen-garden and also for market-gardens.



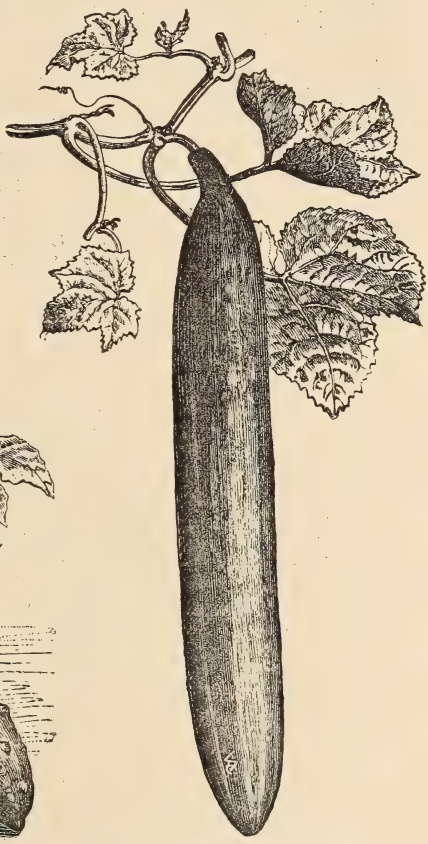
Green Parisian Long Ridge Cucumber.

Long Green Stourbridge Cucumber.—A productive and vigorous grower, with leaves large and pointed; fruit almost spineless, in colour a vivid green, turning to pale yellow towards maturity. It is cylindrical in shape, blunted at both ends, and measures 13 to 15 in. in length and 1½ to 2½ in. in diameter. Grown in hot-beds, it yields an early and abundant crop of remarkably fine fruit.

Green Parisian Long Ridge Cucumber.—A vigorous plant, the leaves of which are pointed at first, and rounded later on. The fruit is long, cylindrical, measuring 15½ in. in length, 2 to 3 in. in diameter, weighing often as much as four to six pounds and more, of an intense green colour up to full size, when it turns to a greenish yellow and afterwards to a pure yellow. The flesh is white, firm, and crisp. Given the right conditions, it may be grown out-of-doors, but succeeds much better raised in hot-beds.

Long Prickly Cucumber.—In England the Cucumber is very extensively cultivated, usually in houses specially constructed for the purpose, and with very great care and attention. Under these circumstances, the various kinds could not fail to become greatly improved in the size and appearance of the fruit, earliness and hardiness being considered only secondary qualities. This is precisely the result, and there are now in England many varieties of the Long Prickly Cucumber which have long, almost cylindrical fruit, and but few spines, with very solid flesh, and producing remarkably few

Long English Prickly Cucumber.



Rollisson's Telegraph Cucumber.

seeds. We shall only mention the most noteworthy of these numerous varieties.

Rollisson's Telegraph Cucumber.—Slightly longer than the preceding, it takes more kindly to hot-bed culture. It is extremely productive, each plant being able to carry as many as six to eight fruit, especially if cut in succession before they reach full size. Length between 15 and 24 in. The skin is smooth and glossy; the flesh white, firm, and crisp. The stalk end is narrow,

and mostly curved. The fruit is finer and better in appearance if care is taken to straighten it betimes before it can take an objectionable form.

Duke of Bedford Cucumber.—A splendid Cucumber. The fruit is very long, straight, and smooth, with a very few spiny warts. Should be grown in a hothouse, or at any rate in a heated glass-pit. In ordinary glass-frames with only the mild temperature of fermenting manure, it is almost impossible to obtain fruit of fine size and appearance, but when grown in the conditions prescribed, the fruit attains to a length and perfection unequalled by any other variety.

The following varieties, likewise derived from the Long Prickly Cucumber, may also be mentioned :—

Blue Gown Cucumber.—Fruit very long, frequently over 2 ft., cylindrical, covered with a glaucous bloom. Spines few, white, with black points. A very handsome variety.

Cardiff Castle Cucumber.—A vigorous plant, half-early, sets regularly ; good cropper. Fruit long and smooth.

Hamilton's Market Favourite Cucumber.—Fruit 12 to 15 in., long, thin, slightly ribbed, light-coloured spines with black points.

Marquis of Lorne Cucumber.—Fine and long fruit, narrowed at the end ; spines few and white.

Tender and True Cucumber.—Fruit about 15½ in. long, cylindrical ; spines scarce and light coloured with black points.

The following varieties, which also produce long, handsome fruit, are also much grown in England :—*Long Gun, Duke of Edinburgh, Manchester Prize, Dr. Livingstone, Jarman's Improved Telegraph, Stourbridge Gem, Sutton's Peerless, Lord Roberts, Triumph.* These varieties, to succeed well, require to be grown in hot-houses or on beds heated by hot-water pipes.

Ridge Cucumbers.—The following varieties, although growing better in artificial heat, can be grown in the open ground, and hence are called Ridge Cucumbers :—

Bedfordshire Ridge Cucumber.—A handsome, productive, and early kind, resembling Pike's Defiance, but with rather shorter fruit.

Gladiator Cucumber.—Fruit about 1 ft. long, nearly cylindrical, straight, gradually narrowed at the stalk end and more abruptly so at the other. Flesh white, firm, and solid.

King of Ridge Cucumber.—A fine variety, long, straight, rough-skinned, resembling the Green Giant Cucumber.

Pike's Defiance Cucumber.—The fruit of this variety differs from that of the Gladiator Cucumber in being lighter in colour. It is also rather earlier, hardier, and remarkably productive. It is one of the best kinds for growing in the open ground.

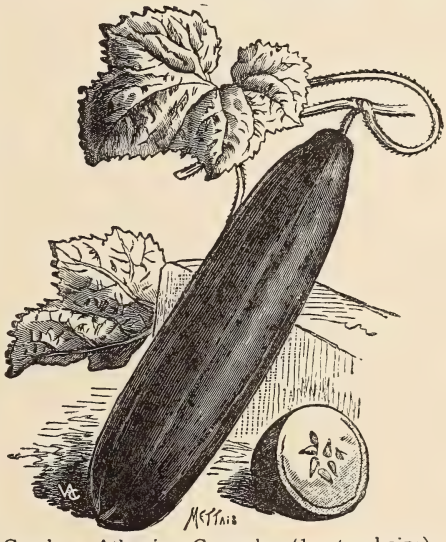
Of the open-air varieties which are not of English origin, we may mention the following :—

Goliath Green Cucumber.—This seems to be only a variety of the Green Giant Cucumber, from which it differs in being a little later and having the fruit a trifle longer.

Tuscan Solid Green Cucumber.—Fruit handsome and long smooth, nearly cylindrical, becoming of a bronzy colour as it ripens.

Extra Long White-spine Cucumber.—An American variety, with long, green, white-spined fruit, rather like the Long Green Chinese Cucumber.

Greek, or Athenian, Cucumber.—A vigorous-growing plant, but of low thick-set habit, rather than very tall. Stems stout, and not more than $4\frac{1}{2}$ to a little over 5 ft. long, with the joints pretty close to one another. Leaves dark green, large, entire, or with three faintly marked lobes, toothed at the edges, decreasing rapidly in size from the base to the end of the stem. Fruit always solitary in the axil of a leaf, three or four to a strong plant, nearly cylindrical, 10 to 12 in. long, sometimes narrowed near the stalk; skin smooth, and entirely devoid of spines, uniformly green until nearly ripe, when it turns to bronzy yellow; flesh white, firm, thick, completely filling the fruit, with the exception of a small portion occupied by the seeds. If gathered a short time before ripening, the fruit keeps fresh and firm for several days. The Greek Cucumber is an excellent, productive, and moderately early kind. It is also hardy and well adapted for growing in the open ground.



Greek, or Athenian, Cucumber ($\frac{1}{8}$ natural size).

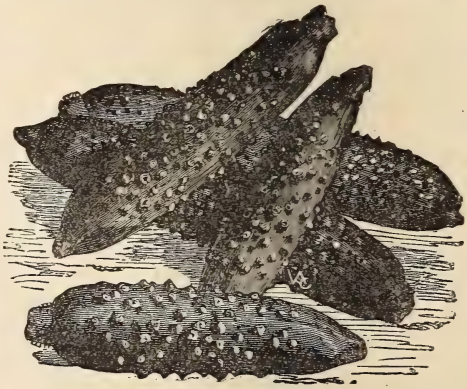
Green Long Chinese Cucumber.—Leaves usually entire, but sometimes with three to five well-marked lobes. Fruit slightly flattened on three sides, 10 to 14 in. long, of a rather pale green colour, marked lengthways with whitish lines and bearing a few spines, which are entirely white, short, and easily detached from the skin. The colour of the fruit becomes paler as it ripens, until it is finally of a yellow-white with scarcely a shade of green. The flesh is very white, tender, and almost as thick as that of the Long White or of the Early White Cucumber. The plant is very productive, bearing for a long time in succession. It is a half-late variety.

Extra Long White-spine Cucumber.—Fruit dark green, long, cylinder-shaped, with white spines; the flesh tender and very white. A vigorous and productive variety.

Green Long Chinese Cucumber (⅓ natural size).

Arlington, or Improved White-spine, Cucumber. — Cultivated in the United States. Is a sub-variety of the last-named, the fruit being much shorter, dark green, and more pointed at the ends. Adapts itself as well to forcing as to outdoor culture

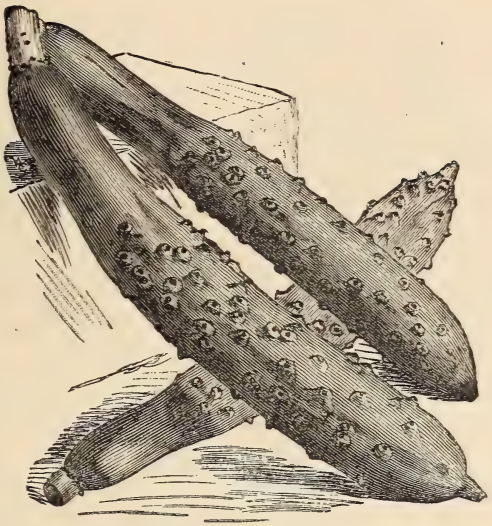
Gherkin, or Pickling, Cucumber.—A vigorous, free-flowering, and productive plant, with stems from 5 to over 6 ft. long. Fruit oblong in shape, and intermediate between the Early Russian and the Early Yellow Dutch varieties. They are almost always gathered soon after the plant flowers, when they are about as thick as the finger, and they are used almost exclusively for pickling. There are two distinct kinds of Gherkin, viz. the Southern variety (*Cornichon Court du Midi*), which is more properly a small yellow Cucumber, very productive, and of rapid growth, and the Small Green Paris variety, a more thick-set and more productive plant, with smaller fruit.



Gherkin, or Pickling, Cucumber (natural size of young fruit).

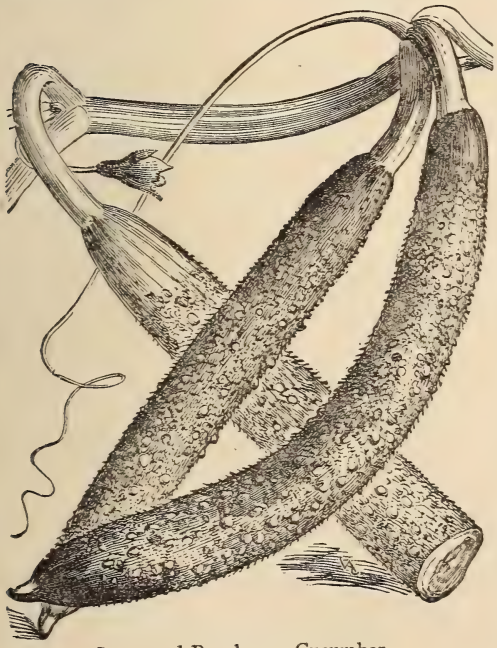
The Early Frame, or Early Short Pickling, Cucumber, cultivated in the United States, is a handsome, short, early, hardy, and a much less leafing variety than the Southern kinds.

The Early Cluster Pickling Cucumber, also an American variety, resembles the Green Paris Cucumber, excepting that its colour is dark green. The fruit is also somewhat longer, growing in bunches of two and three. It is a productive variety.



Green Meaux Pickling Cucumber.

Green Meaux Gherkin.—Distinct from the ordinary Gherkin, the fruit being almost twice as long, nearly cylindrical in shape, and in colour a beautiful green, with an absence of spiny excrescences for a third of its length. Vigorous and hardy, it succeeds in open culture. It is more rapid in growth than the ordinary Gherkin, and very productive.



Improved Bourbonne Cucumber.

Improved Bourbonne Cucumber. — A true Cucumber, producing long, thin, crisp fruit, which, if gathered soon after they have set, make unusually fine Gherkins. The spines are more numerous and smaller than in other varieties, and resemble short, stout hairs. It is quite distinct from the Meaux Cucumber, being thinner, longer, and a more intense green. It is specially suited for the production of Cornichons or Gherkins, on account of its abundant and long-continued yield, provided the fruit is gathered about as soon as formed.

The engraving shows the length and shape of the fruit when ready for pickling.

Toulouse Gherkin.—A vigorous plant, with rounded light green leaves. When fully grown the fruit is thick, egg-shaped, and yellow, measuring 7 or 8 in. in length and about $3\frac{1}{4}$ in. in diameter. The half-grown fruit, as used for pickling, is thick, short, and spiny, with triangular section. This kind is much grown in the south-west of France. It is fairly early and very productive.

Early White-spine Pickling Cucumber.—A very hardy and vigorous and also very productive variety, each plant carrying eight or ten fruit if they are allowed to ripen, and many more if gathered young. When young they are green, short, and stout; as they grow they become paler and marked with four or five white longitudinal lines; when quite ripe they are almost white. Of recent introduction from America, it is particularly recommended for market-garden culture.

Boston Pickling, or **Green Prolific, Gherkin.**—An American smooth-fruited variety. It is short, bright green, and comes between the Russian and the Paris Gherkin, but is more like the Russian. In America it is much used for pickling.

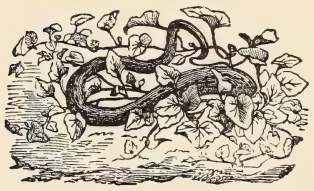
The Chinese Gherkin is a pretty and vigorous variety, low-growing, and not trailing much; the fruit longer and more cylindrical than the European varieties.

SNAKE CUCUMBER

Cucumis Melo, L. *var.*; *Cucumis flexuosus*, L. *Cucurbitaceæ.*

French, Concombre serpent. *German*, Grüne lange gekrümmte Schlangen-Gurke, Schlangen-Melone. *Italian*, Anguria.

Native of the East Indies.—Annual.—Stem creeping, slender, round or bluntly angular, and covered with short hairs; leaves rounded, almost kidney-shaped, or with five obtuse angles; flowers monœcious, pale yellow, small, with five rounded divisions, exactly resembling the flowers of a Melon and quite unlike those of a Cucumber; fruit very long and slender, almost always bent and twisted, dark green, marked with paler longitudinal furrows, and thickest at the end farthest from the stalk. They are about 3 ft. and sometimes more in length, and change to a yellow colour when ripe, at which time they exhale a strong odour of Melons. The seed is like that of the Melon. Its germinating power lasts for seven or eight years. This species, notwithstanding its common name, is a true Melon.



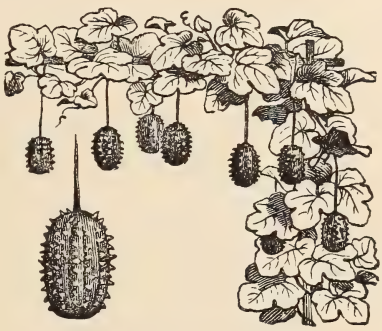
Snake Cucumber ($\frac{1}{15}$ natural size).

Individual plants of it are found bearing at the same time fruit some of which are long and snake-like, while others are broad and oval in shape. Sometimes even the same fruit will be thin and snake-like near the stalk, and swollen at the other end into the semblance of a Melon. The culture is almost like that of the Melon. The plant does not grow well in the open air in the climate of Paris. The Snake Cucumber is chiefly grown as a curiosity, but it may be used for pickling, like the Gherkin.

PRICKLY, or WEST INDIAN, GHERKIN

Cucumis Anguria, L. *Cucurbitaceæ. Concombre des Antilles.*

Native of Jamaica.—Annual.—A creeping and very branching plant. Stem slender, covered with rough hairs, from 6 to nearly 10 ft. long, and furnished with simple tendrils. Leaf-stalks as long as the blade of the leaf, which is divided into five or seven rounded, slightly toothed lobes. Male flowers yellow, very small, less than $\frac{1}{2}$ in. in diameter, numerous, on short slender stalks; female flowers long-stalked. Fruit oval, green, with white longitudinal streaks, turning pale yellow when ripe, covered all over with fleshy protuberances, which are pointed or curved like true spines or prickles. When ripe it is about 2 in. long, and over 1 in. in diameter. The stalk is nearly twice as long as the fruit. The interior of the fruit is almost entirely filled with the seeds. The flesh is very scanty, but white, firm, and of a very agreeable flavour, without any bitterness. Seeds small, oval, and rather swollen; their germinating power lasts for at least six years. In the Colonies the fruit is eaten boiled or pickled.



West Indian Gherkins.

GLOBE CUCUMBER

Cucumis prophetarum, L. *Cucurbitaceæ. Concombre des prophètes.*

Native of Northern and Central Africa.—Probably perennial, but annual in France.—A plant with a rather short creeping or climbing stem, which seldom exceeds from about 3 to 5 ft. in length, and is very rough and a gray colour. Leaves also gray, oval, and divided into five round lobes. Fruit oblong in shape, about 2 in. long and about $1\frac{3}{4}$ in. in diameter, marked with

alternate bands of yellow and dark green, and covered all over with stout and almost spiny hairs ; the flesh is scanty, and too bitter for eating. Seeds small, flat, oval, but terminating in a point at each end, and with a smooth, almost white skin. Their germinating power lasts for over six years.

With this species is sometimes confounded the Gooseberry Cucumber (*Cucumis myriocarpus*, Ndn.)—a plant with long stems and very green leaves, which produces an abundance of very small fruit covered with stout green hairs, and exactly resembling Gooseberries in shape and size.

CUMIN or CUMMIN

Cuminum Cyminum, L. *Umbelliferæ.*

French, Cumin de Malte. *German*, Pfeffer-Kümmel. *Dutch*, Komijn. *Italian*, Comino di Malta. *Spanish*, Comino.

Native of Upper Egypt.—Annual.—A very low-growing plant, seldom more than 4 to 6 in. high, and branching from the base. Leaves reduced to mere linear blades ; flowers small, lilac, borne in terminal umbels of from ten to twenty flowers on the extremities of very divergent branches ; seed large, elongated, concave on one side and convex on the other, with six rather prominent ribs on the convex side, and bearing long hairs, which fold up when the seed is ripe. The seeds have a hot taste and a strong aromatic flavour. Their germinating power lasts fairly well for three years, but declines visibly after the second year.

CULTURE.—The seed is sown in the open ground as soon as it has become warm enough, that is, in the beginning or middle of May. The plants grow rapidly, and the seed commences to ripen at the end of July. No attention is necessary, except the occasional use of the hoe. The seeds are used for flavouring soups and pastry, and also in the manufacture of some kinds of liqueurs.

DANDELION

Leontodon Taraxacum, L. *Compositæ.*

French, Pissenlit, Dent-de-lion. *German*, Löwenzahn. *Flemish*, Molsalaad. *Italian*, Dente di leone.

Native of Europe.—Perennial.—Leaves all radical, spreading into a rosette, smooth, oblong, runcinate, with triangular-lanceolate lobes, and entire towards the extremity ; youngest leaves often brownish at the commencement of their growth. Flower-stalks hollow, one-flowered ; flower-heads large with florets of golden-yellow. Seeds compressed, oblong, rough or scaly, and prickly at the top ; their germinating power lasts for two years.

People contented themselves with gathering Dandelions in the meadows or fields until, as they became an important article of commerce in the Central Market of Paris, it occurred to some that it could be cultivated and improved by the selection of seed from choice plants. Thus the plant was improved to a remarkable degree, as may easily be seen by comparing the produce of seeds gathered from the wild plant with that of seeds obtained from the cultivated plants.

Thick-leaved, or Cabbaging, Dandelion (⅓ natural size).

CULTURE.—The seed may be sown in March or April, either where the plants are to stand, or in a seed-bed, from which the seedlings are to be pricked out, in May or June, in rows, which should be 14 to 16 in. apart. The plants are extremely hardy, and require no attention beyond occasional hoeings and waterings. In autumn they commence to yield, and will continue to do so all through the winter, if they are looked after. The quality of the Dandelion is much improved by blanching, which may be effected either by covering the bed with a layer of sand, or by placing an inverted flower-pot over each plant, having previously gathered the leaves up together. The pot should be large enough to cover the plant without pressing the leaves too closely against one another. In winter the plants lose most of their leaves, but an abundant new growth takes place in spring, and any plants which have not yielded much the first year do so plentifully in the spring of the second.

Improved Very Early Dandelion.

USES.—The whole of the plant is used for salad; if blanched, so much the better.

Large Green Montmagny Dandelion.—This, now largely grown in the vicinity of Paris, is a more vigorous form of the Common Dandelion. It blanches well.

Improved Giant Erect Dandelion.

Thick-leaved, or Cabbaging, Dandelion.—A very distinct variety, obtained by cultivation, and surpassing the wild plant not so much in the size as in the very great number of its leaves, which form a regular tuft or clump, instead of a plain rosette. It yields a very abundant crop without taking up much ground, and blanches very easily and, indeed, almost naturally. It appears to us to be the best variety that has been obtained up to the present.

Improved Very Early Dandelion.—Increasing the breadth of the leaves of Dandelions has resulted in fewer leaves being produced. The variety known as the *Improved Broad-leaved Dandelion*, forms a simple rosette of very large and broad leaves, sometimes 20 in. across. Its productiveness not being in proportion to the amount of space it occupies, it has been almost completely superseded by a sub-variety called the *Improved Very Early Dandelion*, in which less productiveness is compensated for by greater earliness. Its leaves are large, and are formed as soon as the winter is over. They make a very delicate salad.

Moss-leaved Dandelion.

Improved Giant Erect Dandelion.—A distinct variety which, instead of forming into a rosette, like other Dandelions, grows

in erect, strong, thickly set tufts. The leaves are long, stout, toothed, and slightly brown. It is very early, vigorous, and more prolific than most of the other Dandelions.

Moss-leaved Dandelion.—A distinct variety of Curled-leaved Dandelion, much denser and more compact than the Common kind, and apparently permanent in its characteristics. The blade of the leaf is divided and, as it were, slashed into narrow strips. The plant can be easily blanched, and in that condition affords a salad not unlike Curled Endive, but coming in in spring, when it is very difficult to have any Endive fit for table use.

DILL

Anethum graveolens, L. *Umbelliferæ.*

French, Aneth. *German*, Dill. *Flemish*, Dille. *Danish*, Dild. *Italian*, Aneto. *Spanish*, Eneldo.

Native of Southern Europe.—Annual.—A plant 2 to over 2½ ft. high. Leaves very much cut into thread-like segments; stem glaucous green, hollow, very smooth, and branching; flowers yellowish, with very small petals which are rolled inwards, borne in compound umbels without bracts; seeds very flat, and having a strong and bitter flavour; their germinating power lasts for three years. The plant, in its general appearance, very much resembles the Common Fennel, and all its green parts have a flavour like that of Fennel and Mint combined. Sown in April, where the plants are to stand, it succeeds well in the open air, in any kind of well-drained soil, especially in a warm position. The seeds are used as a condiment, or for pickling with Gherkins. In the north of France they are often employed for flavouring winter preserves.

EGG-PLANT

Solanum Melongena, L. *Solanaceæ.*

French, Aubergine. *German*, Eierpflanze. *Flemish*, Eierplant. *Italian*, Petronciano. *Spanish*, Berengena. *Portuguese*, Beringella.

Native of India.—Annual.—Stem erect, branching; leaves entire, oblong, of a gray-green colour, more or less powdery, and often spiny on the veins. Flowers solitary in the axils of the branches, shortly stalked; corolla monopetalous, and of a dull violet colour; calyx often spiny, increasing in size with the fruit. Seeds small, flattish, kidney-shaped, and yellow; their germinating power lasts for six or seven years.

CULTURE.—In the climate of Paris the Egg-plant can seldom be grown without the aid of artificial heat. The seed is usually sown on a hot-bed in February or March, and the seedlings are

pricked out into another hot-bed six weeks or two months later. Early varieties raised in hot-beds may also be planted out in the open air about the end of May, when the ground has become well warmed. The plants require a warm and sheltered position, and plentiful waterings. In order to obtain handsome, well-grown fruit, a certain number only should be allowed to remain on each plant, proportioned to its strength. It is a good plan also to pinch the extremities of the branches towards the end of the summer. In England we have never seen this plant well grown even under glass. In the Eastern States of North America we were surprised at the fine health it attained in the fields, and the great size of the fruit—as large as well-grown Melons.

Long Purple Egg-plant (⅓ natural size).

USES.—The fruit is usually cooked. The different varieties are highly esteemed for table use in the countries of the south of Europe and South America.

Long Purple Egg-plant.—Stem greenish, or faintly tinged with brown. Leaves oval, entire, slightly sinuate-lobed, and bearing a few purple-coloured spines on the veins of the upper surface; youngest leaves purple at the base, the others entirely green. Flowers lilac, large, axillary, with a brown calyx, which increases very much in size after the flower fades, so that it is three or four times larger when the fruit is ripe than it was when the flower opened. Fruit oblong-oval, slightly club-shaped, thickest at the end farthest from the stalk, very smooth and glistening, and almost black-purple in colour; flesh firm and compact, with few seeds, and best in quality before the fruit is fully grown. When quite ripe, the fruit is from 6 to 8 in. long and 2 to 3 in. in diameter. A well-grown plant may carry from eight to ten fruit. This is the best variety for table use in all countries where the summer is long and warm, as it requires five or six months' growth to ripen the fruit. It is therefore especially suitable for the south of Europe, but for the climate of Paris the following kind is to be preferred.

Early Long Purple Egg-plant.—A sub-variety of the preceding kind, in comparison with which it is not quite so strong-

growing nor so large, being of more slender habit. Stem almost black; leaves oval, entire, with hardly any spines, and with the stalk and veins very deeply tinged with purple on the upper surface. The general tint of the leaves is grayer than that of the leaves of the preceding kind, and the fruit is smaller and more slender. This variety, on account of its earliness, is the most suitable for culture in the climate of Paris.

Barbentane Very Early Egg-plant.

Barbentane Very Early Long Purple Egg-plant.—Stem black; leaves oval, generally lobed, of a gray dark green colour, with black stalks; veins much tinged, specially on the upper surface, and bearing a few spines on the lower side; flowers large, purple, with brown calyx. The fruit measures 7 to 8 in. in length, and about 2 in. in diameter at the thickest part; it is almost cylindrical and slightly pointed, and very dark, almost black. Each plant bears eight or ten fruit, which ripen well even in mild climates. It is very early and is the most productive Egg-plant grown in the climate of Paris.

Early Dwarf Purple Egg-plant.

Early Dwarf Purple Egg-plant.—A very early variety, and therefore very valuable for our climate. Plant low-growing and branching, with a black stem and dark violet-coloured flowers. Leaves of a slightly gray-green colour, elongated, and faintly waved at the edges; veins black on the upper surface; leaf-stalk dark violet, as are also the divisions of the calyx. Fruit ovoid, 3 or 4 in. long and about 2 in. in

diameter at the thick end, numerous, of a rather deep but dull purple colour, and not glistening like those of the Long Purple variety. They are fit to gather at least a month earlier than those of any other kind, and each plant may be allowed to carry a dozen or so. The dwarf habit of this plant renders it very suitable for frame culture in early spring. This variety should be looked after, as one of the most likely to suit our English climate, in which the Egg-plant has not yet been successfully cultivated.

Round Purple Egg-plant ($\frac{1}{4}$ natural size).

New-York Purple Egg-plant.

Round Purple Egg-plant.—Stem brown, as are also the leaf-stalks and the veins of the leaves. Leaves rather large, very green, broad, and almost always sinuated at the edges ; veins purple on the upper surface, and bearing a few spines ; stalks very spiny. Fruit very large, and of a paler and duller purple colour than the fruit of the preceding varieties. It is not quite round, but more like a short Pear. The variety is later than the two preceding kinds, and is especially suitable for southern climates. A plant of it should not carry more than three or four fruit.

New-York Purple Egg-plant.—Stem stout, not very tall, usually branching, and of a gray-green, slightly, or not at all, tinged

with purple. Leaves entire, undulated at the edges, or faintly lobed, and bearing short spines on the ribs on both sides. Flowers pale lilac, rather large. Fruit very large, of a very short Pear-shape, and slightly flattened at both ends; it is paler in colour than that of the Round Purple Egg-plant, but is larger and fuller and entirely devoid of ribs or longitudinal furrows. The fruit-stalk, and also the persistent calyx, usually remain green up to the time of ripening. This variety is distinguished from those already enumerated by its lower stature, its more compact and thick-set habit, and especially by the quality of the flesh, which almost entirely fills the interior of the fruit, leaving but very little space for the seeds. A plant seldom carries more than two fruit. The *Common Giant Egg-plant* is to be referred to this variety, which is steadily superseding it in cultivation. There is a variety of this with cream-white fruit which is much appreciated in the United States, where it is known as the *Pearl-white Egg-plant*.

Black Pekin Egg-plant.

Black Pekin Egg-plant.—A strong-growing plant, almost entirely of a black-purple colour. Fruit nearly or quite spherical, 5 or 6 in. in diameter, glistening, and exhibiting this peculiarity—that those parts of it which are protected from the action of the sun by being covered with the divisions of the calyx remain quite green. This variety is not of much account for the climate of Paris, as it is late, and the fruit has a very decided acridity in its flavour.

Madras Egg-plant.—Its culture is exactly like that of the other Egg-plants. Its chief use, however, is as an ornamental plant. The fruit is numerous, oblong, pear-shaped, varying in colour on the same plant between purple, yellow, green, and also striped white and yellow. It is eaten as a vegetable in India, but for table purposes it cannot be compared with the improved varieties as known to us. Here it can only be useful for its ornamental qualities.

Chinese Brinjal, or White China Egg-plant.—A very distinct variety, with long slender white fruit, which are almost always curved. A late kind.

There are a great many other varieties of Egg-plant, which are more or less closely allied to those just described. The most noteworthy of these we shall briefly mention, as follows :—

Catalonian Egg-plant.—A late, spiny kind, resembling the Round Purple variety.

Murcian Egg-plant.—Fruit purple, round, marked with a few ribs ; stem and leaves spiny ; the leaves are more lobed and the veins are more deeply coloured than those of the Round Purple variety.

Antilles Giant Egg-plant.—This is a strong-growing late kind, without spines, and bearing fruit resembling that of the Round Purple variety.

Green Egg-plant.—This does not appear to be a distinct and fixed variety, as, amongst the White Egg-plants, fruit are frequently met with which are more or less greenish or variegated with green.

Thibet Egg-plant.—A late variety, with elongated fruit of a greenish white colour. It was introduced about thirty years ago, and seems to have gone almost out of cultivation.

WHITE EGG-PLANT

Solanum ovigerum, Dun.

French, Aubergine blanche. *German*, Weisse Eierpflanze.

A rather low-growing, branching plant. Stem and leaf-stalks green, or very faintly tinged with purple, and bearing a few white spines ; leaves wavy at the edges ; flowers lilac ; fruit white, exactly resembling a hen's egg, but turning yellow when ripe. Like the Madras Egg-plant, its chief use is for ornament. The fruit is (probably erroneously) considered by some to be unwholesome. There is a form of it which has larger fruit, and another of dwarfer growth and with much smaller fruit, which is known as the Dwarf White Egg-plant.

White Egg-plant ($\frac{1}{3}$ natural size).

All the forms are cultivated in the same way as the common kinds. The fruit is not eaten, but may be used as ornaments in baskets of mixed fruits at dessert, etc.

ENDIVE

Cichorium Endivia, L. *Compositæ.*

French, Chicorée Endive. *German*, Endivien. *Flemish* and *Dutch*, Andijvie. ***Danish***, Endivien. *Italian*, Indivia. *Spanish* and *Portuguese*, Endivia.

Native of the East Indies.—Annual and biennial.—A plant with numerous radical leaves, smooth, lobed, more or less deeply cut, and spreading into a rosette. Stem hollow, from 20 in. to over 3 ft. high, channelled, and branching; flowers blue, axillary, sessile; seeds small, angular, long, gray, ending in a point on one side, and having a sort of membranous collar on the other. Their germinating power lasts for ten years. All the varieties which have sprung from *Cichorium Endivia* are distinguished by having the leaves entirely smooth, both on the blade and on the stalk, and by being of a more tender constitution and more sensitive to cold than the cultivated varieties of *Cichorium Intybus*.

CULTURE.—As Endive is a plant of rapid growth, highly esteemed for table use, it is grown all the year round. The gardeners about Paris commence to sow it in the open ground in April, and make successional sowings up to the end of August. In September and October they sow under *cloches* (or bell-glasses), and from December to April in hot-beds. (As far as possible, no plants are grown in the open ground except those which have been sown there, as, if planted out from hot-beds, they are liable to run to seed the same year.) The seedlings are pricked out as soon as they are strong enough and have seven or eight leaves, at a distance of from 10 to 16 in. from plant to plant, according to the variety, and, from the time they strike root until they are fully grown, should be frequently and plentifully watered. Endive grown in the open ground may be gathered for use from August, and the plants will continue to yield, if properly looked after, either where they stand, or removed to a vegetable-house, up to the end of winter. During the remainder of the year, the plants which are sent to table are raised under bell-glasses or in hot-beds. Before they are gathered, the plants are usually blanched. For this purpose they are left until nearly full grown, when the leaves are all tied up together, so as to protect the heart of the plant effectually from the action of sunlight. The plants are allowed to stand where they grow, and are watered when necessary, care being taken not to let any water get into the hearts, or they will be liable to rot. Endive treated in this way will be fit for use in about twenty days. Any plants which are standing when frosty weather comes on will continue to grow if protected by a covering of leaves or straw mats, which should be removed when the weather becomes mild. In this way the yield of the different varieties, and especially of the Batavian Endive, may be prolonged for several weeks. Late-

grown plants may be taken up with balls and removed to a vegetable-house, where they can be blanched. For particulars of the ways in which Endive is forced, we must refer to special treatises on market gardening and early spring crops.

Culture in Britain.—Endive requires much less heat than Lettuce, and is chiefly valuable as an autumn and winter salad vegetable. In many gardens, if sown before August, it is almost certain to run to seed prematurely, and consequently it is unwise to depend upon one, or even two sowings.

Sowing.—Make a small sowing of the Moss-curled and Green Curled about the middle of July, another of the same varieties and Improved Broad-leaved Batavian about the first week in August, and a final sowing of Green Curled and Batavian at the middle of August. The Moss-curled is close-growing and blanches quickly, but is the least hardy, and is not at all suitable for late work. This variety requires less room than the others, and may be sown in drills 6 in. apart, and the plants should eventually be thinned out to the same distance asunder. The other two are strong growers, and the rows may well be 12 in. apart and the plants 10 in. asunder in the rows. The first sowing is made on a small border previously used for pricking out Cauliflowers and Brussels Sprouts, and but few of the seedlings are transplanted unless it be to make up blanks. A long border previously well enriched for early Cauliflowers is given up to the second sowing, being prepared by simply having the surface lightly coated over with lime and heavily hoed. The drills are drawn and watered, the seed sown thinly and lightly covered. For the final sowing a warmer or rather better drained border is preferred—one previously cropped with early Potatoes. Digging being unnecessary in the former case, it is still less so when planting or sowing ground after Potatoes, but if the ground be at all poor, fork in, but not deeply, a dressing of short manure. Usually there is great difficulty in preserving the young plants from slugs, and not unfrequently it is necessary to sow seeds in a frame so as to have sufficient plants to make up the large blanks caused by these pests. In some gardens where the soil is light, and the drainage good, it is a good plan to plant the Endive in shallow drills, say, about 6 in. wide and 3 in. deep. In such positions they can be easily watered, and an occasional supply of liquid manure poured between them will cause them to grow to a great size. These drills also render blanching a simple matter, all that is necessary being to cover a few plants a few days before they are wanted with either boards or slates. In order to have Endive in good condition over as long a period as possible, extra pains must be taken with the

Blanching and Protecting.—Unless properly blanched, Endives are not appreciated, and unless some measures are taken to ensure protection, they are liable to be much injured, if not actually killed, by frosts. All that is necessary in the case of the early crops is to either tie up a certain number at weekly intervals, much as we would Brown Cos Lettuces, or cover with boards, or with rough litter or hay, and the same methods of blanching may be adopted with those protected. Under hay the Endive blanches perfectly, without being soiled or injured in

any way. Only a given number, according to the demand, should be covered at a time, as the plants will not keep long after being blanched. Where portable garden frames are abundant, any number of plants may be covered with these, the lights being put on and further protection in the shape of mats and litter given when necessary. It is when frames are scarce that the grower has to adopt various contrivances in order to meet with the demand for salading. In some districts Endive does not keep well if lifted and stored, but in less moist neighbourhoods I have kept great numbers closely packed in frames. In this case the plants were lifted before severe frosts were anticipated, as if only slightly injured early decay is certain to follow. A dry day was selected, the plants carefully tied up, lifted up with a trowel so as to secure a good ball of earth to the roots, and they were then carried in hand-barrows to the frame ground. Frames previously used for Melon, Cucumber, and Tomato culture were filled rather closely with the Endive, and into the good soil they soon pushed fresh roots. The whole of the plants were untied, and were blanched with hay according as required, the last to be covered being the Batavian, this being the best keeping sort. I do not care to leave any quantity of Endive in the open from want of frame room, and have frequently stored some in a Mushroom-house for early use, and many more in a dry shed, these proving serviceable in lengthening the period before those better stored under the frames, or covered where grown, are cut. Whatever plan of storing is adopted, care should always be taken to lift before the plants are injured and when as dry as possible. The small or half-grown plants of the hardiest sort sometimes stand out uninjured during the winter, especially if planted on a dry or raised border, and these sometimes prove of service in maintaining the supply of salading till such times as the frame Lettuces are fit for use.—W. I.

Endive is largely grown in nearly all market-gardens round London, and especially in those situated in moist districts. The first sowing is usually made early in May, either in frames or on prepared beds in the open air. In either case, good rich soil is used in which to sow the seed, and the surface after sowing is made firm by being beaten with the back of the spade. The chief point in reference to early-sown Endive is to keep the plants continually growing, as if they experience the least check they run to seed or "bolt," as it is termed. On this account early Endive, as a rule, is not grown in very large quantities. The principal sowing is made early in June, and is succeeded by smaller ones to the end of July. In most cases the outdoor sowings are made on the ground on which they are to grow, as on Celery ridges or between the rows of any crops where there is room, and for which the ground was well manured. Sometimes, however, the seed is sown on beds, and the seedlings thinned out if too thick, and transplanted when sufficiently large to handle. In any case the distance apart of permanent plants is from 12 to 15 in. Endive and Lettuces are frequently planted on land alternately, large fields being often devoted to them; sometimes whole fields of Endive alone occur. Blanching is effected by tying up the leaves like those of Lettuces with withies or pieces of bast. In from twelve to fifteen days after being tied up Endive is ready for market. The

most forward piece is then cleared by pulling the plants up by their roots, and in this state they are packed in hampers and conveyed to market. The Dwarf Green Curled and the Batavian are the kinds chiefly grown, but the former sort is that which is grown in the greatest quantity. The produce from the earliest sowings is ready for market early in August and onwards until Christmas, and even later. A few growers house plants for winter and spring supply, but now, when they have to compete in the market with the French, the prices obtained scarcely remunerate them for their trouble and house-room.

USES.—The leaves are eaten boiled or in salad. In England we make no such good use of Endive as a boiled vegetable as the French do. Many vegetables as we have, the distinct flavour of certain varieties of Endive when cooked should make them as welcome as table vegetables as they are in France.

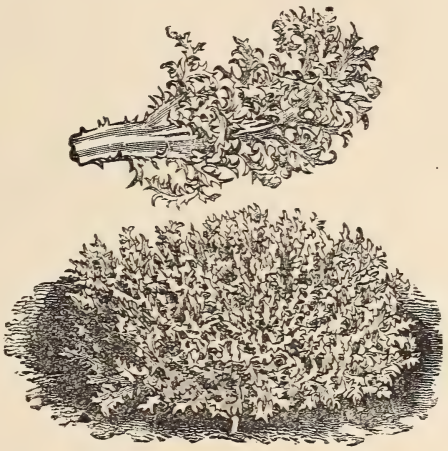
Green Curled Summer Endive.—Under this name, two very distinct varieties are very extensively cultivated, namely, the *Paris* and the *Anjou*. The *Paris*, or Italian, variety is the older of the two kinds. It has its leaves arranged in a dense rosette, full even at the centre, and from 12 to 14 in. in diameter. The leaves are very much divided in the upper half into slender segments, which are not much curled. The lower half of the leaf is a rib or stalk over 1 in. wide, and a faint rosy colour, especially at the base.

Green Curled Paris Endive.

The *Anjou* variety began to be very generally cultivated about twenty years ago, and is superseding the other variety, to which it is very much superior. It forms a rosette nearly as broad as that of the Paris variety, but much denser and more convex in shape. The leaves are very numerous, and closely crowded together; the leaf-stalk or rib is entirely white at the base, ½ in. or more broad, and edged on the lower half with white thread-like leafy segments. In the upper half of the leaf the midrib widens perceptibly, is often more or less contorted, takes a green tint, and is furnished with very finely cut leafy appendages, which are only slightly curled, and are a clear green colour, changing to a butter-yellow in the heart of

the plant. The extremities of the leaves become intertangled to such an extent that one leaf cannot be distinguished from another, and the whole plant almost resembles a great tuft of Moss.

These two kinds are cultivated in the same way. They are both suitable for forcing and for open-air culture, especially in summer and early autumn, but later on they are very liable to rot.



Green Curled Summer Endive (Anjou variety) ($\frac{1}{8}$ natural size).

Green Fine-curled Winter Endive (*Chicorée frisée de Meaux*). — This variety forms a broader rosette than the preceding kind, but not so full. It is usually from 16 to 18 in. across. The leaves are longer and their divisions are more curled and crisped than in the summer variety. The midrib, which is tinged with rose-colour on the lower part, is often $\frac{1}{2}$ in. or more broad, the middle part being furnished with very much divided, crisped, and curled leafy segments. The terminal portion of the leaf is entire and almost flat, with the margin notched and curled. This variety is not so early as the preceding kinds, but it is more hardy, and is particularly suitable for an autumn crop.

Golden-heart Curled Summer Endive.—A vigorous, hardy, and productive kind, resembling the Meaux Endive in size and general features. Its centre is very dense and full, and turns to yellow, which gives it the appearance of having been artificially blanched.

Green Fine-curled Winter Endive ($\frac{1}{8}$ natural size).

Picpus Curled Endive.—This kind is nearly the same size as the Meaux Endive, the diameter of the rosette being from 14 to 16 in., but the leaves are far more finely cut, and the heart of the rosette is fuller and firmer. The two varieties differ remarkably in the formation

Picpus Curled Endive ($\frac{1}{8}$ natural size).

of the terminal part of the leaf. In the Picpus variety, this is very narrow and almost reduced to a midrib; while in the other kind it has some degree of width. The midrib or stalk of the Picpus also is much narrower, is without the rosy tinge, and only furnished here and there with leafy appendages, which give it a very peculiar appearance. The Picpus is a very good and hardy kind of Endive, and is well adapted for open-air culture.

Green Curled Upright Endive (*Chicorée Grosse Pancalière*).—Resembles the Meaux Endive in shape and leaves, but it is earlier, more erect, and so dense in the centre that the crowded mass of foliage blanches of itself. The midribs of the leaves are tinged with rose, by which it is easily distinguished from the Ruffec Endive, which also forms compact tufts. For its rapidity of growth and productiveness it is much grown for salads, etc.

Rouen or Stag's Horn Endive.—A handsome and very distinct variety, forming a very full rosette, 14 to 16 in. in diameter. The leaves are not so finely divided, nor are the divisions so much curled, as in the preceding varieties; they are also of a duller and grayer colour. The midrib is thick, but very

Green Curled Upright Endive.

narrow, and entirely white. This is one of the kinds which are most extensively cultivated at Paris, and through all the north of France. It is particularly well adapted for open-air culture, and, being hardy, yields a crop until late in autumn.

Rouen, or Stag's Horn, Endive (⅛ natural size).

Louviers Endive.—This variety, which seems to be derived from the preceding kind, is very distinct and good. The plant forms a rosette, which is not so broad as the Stag's-horn variety, but is fuller, more compact, and more convex. The leaves are paler in colour, but the divisions are more regular and narrower. The heart of the rosette is remarkably dense, so that plants of this variety, though occupying less space than those of the preceding kind, yield quite as heavy a crop. In consequence of the almost hemispherical form of the rosette, it contains a greater number of blanched leaves, in proportion to its size, than any other variety; so that, bulk for bulk, it yields a larger amount of useful produce.

Louviers Endive (⅛ natural size).

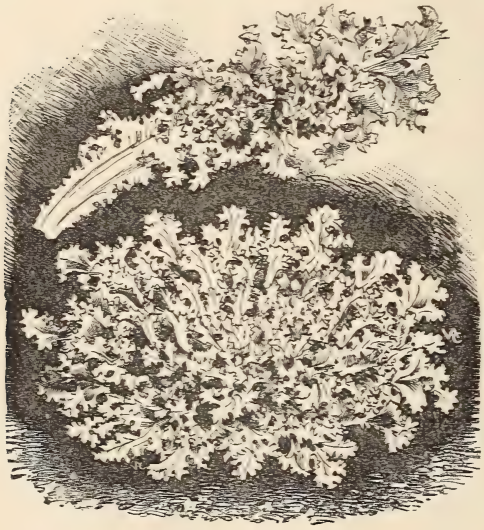
After several trials, we have not been able to detect any difference between the Louviers Endive and the *Guillande Endive*, a variety much in favour in Normandy.

Ruffec Green Curled Endive.—Rosette very large, often 16 to 18 in. in diameter, at first sight slightly resembling that of the Moss-curled variety, but more tufty, and fuller in the centre. The midrib of the leaf is very white and thick, very tender and fleshy, nearly an inch broad, but looking much broader on account of the blanching of a large portion of the blade of the leaf the remainder of which is cut and curled

almost like the Moss-curled variety. The *Ruffec* is one of the best kinds for open-air culture, and is equally suitable for

Ruffec Green Curled Endive ($\frac{1}{8}$ natural size).

summer and autumn. We do not know any other variety which bears cold weather so well, and we have seen it in the open ground, simply covered with leaves, surviving winters in which all other kinds perished.



Imperial Curled Endive.

Imperial Curled Endive.—A handsome curled variety, forming a broad, tall, and well-furnished rosette, and resembling the preceding kind more than any other variety. It differs from it, however, in the lighter colour of the leaves, which are also less finely cut, but have the segments very much curled and folded. This variety is especially noticeable in that its leaves do not exhibit a bare midrib at the bottom, like those of other varieties, but run down to the very ground, where they are from $\frac{4}{5}$ in. to nearly $1\frac{3}{4}$ in. broad. They are also perfectly white for at least one-half their length.

Moss-curled Endive.—Rosette rather small, seldom exceeding 10 or 12 in. in diameter, and not often very compact. Leaves rather dark green, very much cut, curled, and crisped, so that it is difficult to distinguish one leaf from another, and the whole plant resembles a tuft of Moss. The midribs of the leaves are narrow and very white. Not a very productive variety, but sometimes in request on account of its peculiar appearance. As it occupies but little space, it can be grown under bell-glasses. Another equally dense thick-set variety is sometimes met with under the name of the *Short Bell-glass Endive.* This appears to be intermediate between the Moss-curled and the Small Green Curled Summer Endive, coming nearer, however, to the latter.

Moss-curled Endive ($\frac{1}{8}$ natural size).

White Moss-curled Endive.—Very distinct, not exceeding 12 or 13 in. in diameter; with broad ribs, slightly tinged with rose, and leaves finely cut and curled, and light green, except at the heart, which is white with a golden tinge. Not very productive, but a handsome plant and of excellent flavour.

White Moss-curled Endive.

Ever-white Curled Endive.—Rosette not very dense nor well furnished, 14 to 16 in. in diameter; midrib of the leaf yellow, and tinged with rose; leaves very pale in hue, having the appearance of being artificially blanched. This peculiar colour is the chief distinction of the plant, as it is neither very productive nor of particularly good quality; yet it is always welcomed in the markets on account of its blanched appearance.

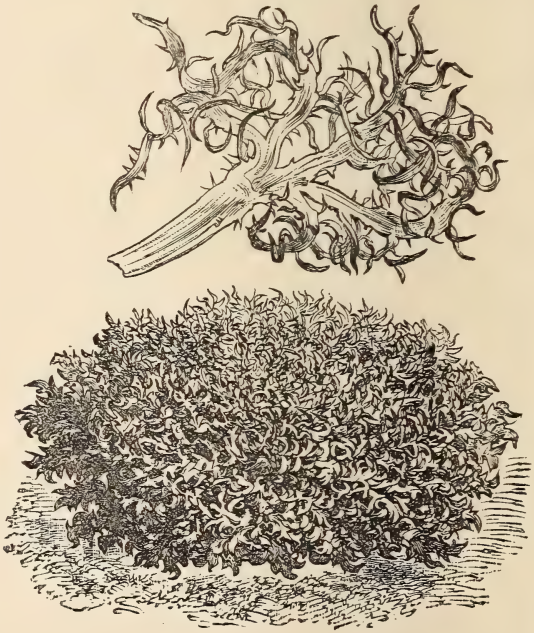
Ever-White Curled Endive ($\frac{1}{8}$ natural size).

into narrow strips, which become much entangled as they grow and form a bulky and compact head weighing a little over 2 lb. Its appearance seems to confirm the opinion that it is a cross between the Common Endive of the south and the curled Stag's-horn Endive. It is not to be recommended for the north of France, not being hardy enough.

Intermediate Bordeaux Endive.—About Bordeaux there is a variety grown under the name of Bastard Endive with broadly cut

Another variety of White Curled Endive, in which the leaves are wavy and curled rather than much divided, was formerly in cultivation, but it has been superseded by the present very finely cut variety.

Curled Christmas Endive.—A very interesting variety grown for some years past in the vicinity of Saint-Remy de Provence and Château-Renard, for winter use. The outer leaves are simply cut and curled at the edges, while the inner leaves are deeply laciniated and divided



Curled Christmas Endive.

leaves. It forms the connecting link between the Curled-leaved and the Broad-leaved, or Batavian, varieties. It is chiefly interesting for having given birth to the following variety.

Queen of the Winter Endive.—A new variety, half way between the Broad-leaved, or Batavian, and the Curled Endives.

Queen of the Winter Endive.

The leaves are broadly lobated rather than cut. It is hardy, or almost so, in the climate of Paris. Raised from seed of the Bordeaux Bastard Endive grown for several years at Geneva, it is a decided improvement upon the original form.

Broad-leaved, or **Batavian, Endive** (French, *Chicorée-Scarole Ronde*).—Rosette broad, often 16 in. in diameter; leaves entire, toothed at the edges and more or less twisted or waved, with broad, thick white midribs. The central leaves, being partially turned inwards, serve to cover and protect the heart of the plant, thus forming a sort of a very dwarf head. When the plant is in this condition, the French gardeners say that it is "*bouclé*," or "curled." When well grown and artificially blanched in the manner described at the commencement of this article, this plant forms one of the best winter salads. The blanched inner leaves are particularly tender and crisp, and have a fine and very agreeable flavour. This variety is far more extensively cultivated than any other kind.

Broad-leaved, or Batavian, Endive (⅛ natural size).

Broad-leaved Limay Endive.

Broad-leaved Limay Endive.— Leaves very large, and in a rosette of palish green, puckered, entire, the inner ones cut into rather deep but not very numerous lobes, very much puckered, and forming a stout head. This is a larger variety than the Common Broad-leaved kind, to which it is preferred in some localities near Paris, without any very apparent reason.

White Batavian Endive. — Rosette rather broader than that of the Common Broad-leaved kind, but not so full, and especially remarkable for the very pale colour of the leaves. This variety heads to a much less extent than any other kind, and is usually cut when young, before it is fully grown. It is less hardy than the Common Broad-leaved kind, and more liable to be spoiled by damp, but on account of its light colour it is in much request for salad. It is chiefly grown for summer and autumn use, and by making successional sowings it can always be had tender.

Hooded Batavian, or **Hardy Green Winter, Endive** (*Chicorée en cornet*).—This variety differs very much in appearance from the other kinds of Endive, and even from the other

White Batavian Endive (⅓ natural size).

Broad-leaved kinds. Its leaves are fewer, but much larger, being almost as broad as long, and cut at the edges into numerous long teeth. The midrib appears to branch from the base of the leaf, over which it diverges in all directions. The leaf, which is at first folded up in the centre of the plant, opens out as it grows, like a twisted paper bag unfolding itself; frequently it forms a kind of hood, which continues to envelop the younger leaves for a considerable time, thus producing a genuine head. If the plant were improved in this direction, it would afford an excellent winter salad, as it is hardy and withstands ordinary winters in the climate of Paris when protected with a covering of leaves or straw mats. It is especially suitable for the west and south of France. It is possible that, by attention and perseverance, a sub-variety may be raised from this plant with a perfect head like that of a Lettuce or a Cabbage, but it is to be feared that it is not quite hardy enough for the northern and central districts of France.

Hardy Green Winter Batavian Endive.

The **Bordeaux Hooded Batavian Endive** differs from the preceding only by its deeper cut foliage. It is much grown in the south-west of France.

White Var Batavian Endive.—A large, compact rosette of broad-toothed leaves, with thick ribs and of a light ashy green, more deeply cut than those of the Green and the White Batavian Endive. For winter cultivation in Provence it has superseded all other varieties. Sown at intervals from August to October, it produces fair-sized plants during the whole winter.

EVENING PRIMROSE

Œnothera biennis, L. *Onagraceæ.*

French, Enothère bisannuelle, Onagre. *German*, Rapuntica. *Flemish*, Ezelskruid. *Italian*, Rapontica.

Native of Peru.—Biennal.—A plant with a rather thick, long tap-root, the flesh of which is white and firm. Radical leaves growing in a rosette, stalked, obovate or elliptic in shape, sinuate-toothed at the base; stems erect, branching, over 3 ft. in height, bearing lanceolate leaves which are more or less narrowed into

the leaf-stalk; flowers yellow, large, in leafy terminal clusters; seed-vessels long, furrowed, narrowed at both ends; seeds small, brown, with five or six flat facets. Their germinating power lasts for three years. The culture and uses of this plant are almost the same as those of the Salsafy. It is more, however, as a curiosity that we mention it, although its rather tender and fleshy root is sometimes used as a table vegetable. It should be employed for this purpose at the end of the first year of its growth, when the plant has put forth only one rosette of leaves.

Evening Primrose ($\frac{1}{5}$ natural size).

FENNEL

Umbelliferæ.

French, Fenouil. *German*, Fenchel. *Flemish* and *Dutch*, Venkel. *Danish*, Fennikel. *Italian*, Finocchio. *Spanish*, Hinojo.

Native of Southern Europe.—Perennial.—The following three plants of the genus *Fœniculum* are in cultivation, and most authors are agreed in thinking that each of them should be referred to a different botanical species.

Common Wild, or **Bitter, Fennel** (*Fœniculum vulgare*, Gærtn.).—Perennial.—Rather common in France in the wild state. Leaves very much divided into thread-like segments; leaf-stalks broad, almost membranous, clasping the stem, which is smooth, hollow, and about 5 ft. high; flowers green, in broad, terminal umbels; seeds long, round at both ends, and retaining the remains of the withered stigma, dark gray in colour, with five ribs, three of which are on the back of the seed, and one at each side. Their germinating power lasts for four years. This plant requires no attention. It is perennial and hardy to such a degree that it is often found growing on old walls, rubbish-heaps, etc. Sometimes, but rarely, the leaves are used for seasoning. The plant is chiefly grown for its seeds, which are often used in the manufacture of liqueurs.

Common Garden, or **Long Sweet, Fennel** (*Fœniculum officinale*, All.; *Anethum Fœniculum*, L. *Fenouil Doux*).—Native of Southern Europe.—Biennial, or annual in cultivation.—Although this plant bears some resemblance to the Wild Fennel, it differs from it in having much stouter stems, and the leaves much less divided, the segments being also of larger size, and of a more glaucous green. It also differs in the remarkable size of the leaf-stalk, the sides of which spread and are curved in such a manner

as to sheath part of the stem and even the base of the leaf above it. Flowers green, in broader umbels than those of the Wild Fennel, and with stouter and stiffer rays; seeds at least twice as long as those of the wild kind, flat on one side and convex on the other, traversed by five thick yellowish ribs, which occupy almost the entire surface of the skin. Their germinating power lasts for four years.

CULTURE.—The seed is sown in drills during summer, but generally it is sown in autumn, in order to have the crop come in during the following spring. It is chiefly used raw as a side dish; the seeds are also used in the manufacture of liqueurs.

This is the famous "*Carosella*," so extensively used in Naples, and scarcely known in any other place; the plant is used while in the act of running to bloom; the stems, fresh and tender, are broken and served up raw, still enclosed in the expanded leaf-stalks. They are esteemed a great delicacy, and by means of successional sowings the Italian gardeners are able to send it to market almost all the year round.

Finocchio, or **Florence Fennel** (*Fœniculum dulce*, D.C.).—Native of Italy.—Annual.—A very distinct, low-growing, and thick-set plant, with a very short stem, which has the joints very close together towards the base. Leaves large, very finely cut, and light green; leaf-stalks very broad, of a whitish green hue, overlapping one another at the base of the stem, the whole forming a kind of head or enlargement varying in size from that of a hen's egg to that of the fist, firm, white, and sweet inside. The greatest height of the plant, even when run to seed, does not exceed from 2 to about 2½ ft. The flower umbels are large, with thick rays, which have a mild, sweet flavour. Seeds oblong, very broad in proportion to their length, flat on one side and convex on the other, with five prominent ribs, in the intervals between which the gray colour of the seed is well shown. Their germinating power lasts for four years.

Finocchio, or Florence Fennel
(⅛ natural size).

CULTURE AND USES.—The seed is usually sown in spring for a summer crop, and towards the end of summer for a late autumn crop, in warm countries. It is sown in rows 16 to 20 in. apart. All the attention required is to thin out the seedlings so as to have them 5 or 6 in. apart, and to water the plants as often and as

plentifully as possible. When the head or enlargement of the leaf-stalks at the base of the stem has attained about the size of a hen's egg, it may be slightly earthed up so as to cover half of it, and in about ten days afterwards cutting for use may be commenced with the most forward plant, and continued as each plant advances in growth. The plant is usually eaten boiled. In flavour it somewhat resembles Celery, but with a sweet taste and a more delicate odour. Up to the present time, it is not much used in France, but it deserves to be more extensively cultivated.

FENNEL FLOWER

Nigella sativa, L. *Ranunculaceæ.*

French, Nigelle aromatique. *German*, Schwarz-Kümmel. *Flemish* and *Dutch*, Narduszaad. *Spanish*, Neguilla.

Native of the East.—Annual.—An erect-growing plant, with a stiff, somewhat hairy, and branching stem. Leaves very deeply cut into linear segments, and of a gray-green colour; flowers terminal, pale or gray-blue, succeeded by toothed seed-vessels filled with almost triangular seeds, which are rough-skinned, black, and have rather a strong aromatic flavour. Their germinating power lasts for three years. There is a variety with yellow seeds, but resembling the type in every other respect. The seed is sown in April or May, and preferably in light warm soil. The plants require no attention while growing, and the seed ripens towards August. The ripe seeds are used for seasoning in various culinary preparations.

Fennel Flower (flower and seed-vessel, ½ natural size).

In Germany the name of Schwarz-Kümmel is also applied to the seeds of the single-flowered *Nigella damascena.*

COMMON GARLIC

Allium sativum, L. *Liliaceæ.*

French, Ail ordinaire. *German*, Gewöhnlicher Knoblauch. *Flemish*, Look. *Dutch*, Knoflook. *Danish*, Hvidlog. *Italian*, Aglio. *Spanish*, Ajo vulgar. *Portuguese*, Alho.

Native of Southern Europe.—Perennial.—A bulbous plant, all the parts of which, and especially the underground portion, have

a very strong and well-known burning taste. The bulbs or heads are composed of about ten cloves, enveloped by a very thin white or rose-coloured membranous skin. The plant hardly ever flowers in the climate of Paris at least, and is propagated exclusively by means of the cloves, for which purpose those on the outside of the head should be selected, in preference to the inner ones, which are not so well developed.

Common Garlic (¼ natural size).

CULTURE.—At Paris the cloves are usually planted as soon as winter is over. Sometimes, especially in the south of France, they are planted in October for an early summer crop. The plant likes rich, deep, well-drained soil. In damp soils, or when watered too much, it often rots. When the stem is fully grown, gardeners are in the habit of twisting it into a knot, in order to increase the size of the bulbs. After the stems have withered, the bulbs are taken up, and will keep well from one year to another. The Common Garlic is the most grown. The membranous skin or covering of the bulbs is of a silvery white colour.

Plant the cloves (*i.e.* the separated portions of the bulbs) in shallow drills about 1 ft. asunder, and 6 in. apart in the row, covering them with soil to the depth of 1 or 2 in.; or plant whole bulbs 1 ft. apart eacn way, and never deep, as wet is apt to get down among the cloves, causing canker and mildew. Merely stretch a line or measure; take the bulbs by the neck and press them half or, say, two-thirds into the soil; then drop a pinch of fine sifted cinder-ashes over them, to prevent worms from drawing them out of the ground. February is about the best season to plant them. A small quantity may be planted in autumn, if it be desired to have a stock early the following season. From this autumnal or, to speak more precisely, October planting, bulbs may be taken up for use early in the succeeding summer. Any time after the leaves turn yellow the crop may be taken up and dried, hanging it up in bunches by the stalks in any airy room.

USES.—In southern countries Garlic is very much used in cookery, but it is not so highly esteemed in the countries of the north. It is only just to say, however, that, when grown in cold climates, it has a stronger and more biting or burning flavour than it has in warm countries.

Early Pink Garlic.—This is an earlier variety than the Common Garlic, and is also distinguished from it by the pink or rosy colour of the skin which covers the head. About Paris, this variety is almost always planted in autumn, as it is said not to succeed well if planted in spring.

Red Garlic.—A variety cultivated in almost all parts of France, but especially in the eastern provinces. It is remarkable for the size of its bulbs, which are rather flat, and composed of short and thick cloves of a purple-red colour. These cloves separate from each other at the upper end of the head by tearing their membranous cover. The cloves of the Red Garlic are much larger than those of the White Garlic. The Red Garlic requires also a richer and more substantial soil.

Some years ago, a variety came into notice, under the name of *Ail Rond du Limousin.* This did not appear to us to differ appreciably from the Common Garlic, from which round heads or bulbs can always be obtained by planting late in the season; and, if these heads are replanted entire in the following year, they will produce heads of enormous size.

Great-headed Garlic (*Allium Ampeloprasum*, L. *Ail d'Orient*). —Native of Southern Europe.—Perennial.—This plant produces a very large head or bulb, composed of cloves, in the same way as that of the Common Garlic, but of milder flavour. The stem, leaves, and flowers are so like those of the Leek that there is every reason to think that both plants have originated from the same type, and have been differently modified by cultivation, the bulb in the one case and the stem in the other having been the subject of improvement. When Leeks produce cloves, which occurs pretty often, these cloves are exactly like those of the Great-headed Garlic. The flowers, which grow in a large round head, yield fertile seeds, but the plant is most usually propagated by means of the cloves, this being a speedier method. The culture and uses are the same as those of the preceding kinds.

ROCAMBOLE

Allium Scorodoprasum, L.

French, Ail Rocambole. *German*, Roccambol. *Danish*, Rokambol. *Italian*, Aglie d'India. *Portuguese*, Alho de Hespanha.

Native of South Europe.—Perennial.—The stem, which is twisted spirally in the upper part, bears at the top a cluster of bulblets, from which the plant may be propagated; they are seldom, however, used for this purpose, as more speedy results are obtained by planting the cloves of the underground bulb. The cloves should be planted in autumn, or not later than February, in rows about 12 in. apart, leaving about $3\frac{1}{2}$ in. between the plants. Its uses are the same as those of the Common Garlic.

ANNUAL GOOSEFOOT or WHITE QUINOA

Chenopodium Quinoa, Willd. *Chenopodiaceæ.*

French, Ansérine Quinoa blanc. *German*, Peruanischer Reis-Spinat.

Native of Peru.—Annual.—Stem 4 to 6 ft. high ; leaves arrow-shaped, divided into three not very deep lobes, smooth, glaucous, mealy, and of thin texture ; flowers small, green, in compact corymbs; seeds round and flat, small and white. Their germinating power lasts for four years.

CULTURE.—The plant is grown in the same way as Orache. The seed is sown in April, where the plants are to stand. The young plants should be thinned out 8 in. apart every way, and plentifully watered in hot weather, which is the only attention they require. The seed ripens in August or September.

USES.—The leaves are eaten like Spinach. In Peru the seeds are used in soups, cakes, and also for making a kind of beer. Before they are used for any of these purposes, they should be subjected to a preliminary boiling, in order to remove the acrid principle which they contain, and which, if allowed to remain, would render the flavour very unpleasant.

PERENNIAL GOOSEFOOT or GOOD KING HENRY

Chenopodium Bonus-Henricus, L. *Chenopodiaceæ.*

French, Ansérine Bon-Henri. *German*, Gemeiner Gänsefuss. *Flemish* and *Dutch*, Ganzevoet. *Italian*, Bono Enrico.

Native of Europe.—Perennial.—Stem about 2½ ft. high, smooth, slightly channelled ; leaves alternate, long-stalked, arrow-shaped, undulated, smooth, and dark green, frosted or mealy on the under-surface, rather thick and fleshy ; flowers small, green, in close, compact clusters ; seeds black, small, kidney-shaped. Their germinating power lasts for five years.

CULTURE AND USES.—This plant, being perennial and extremely hardy, will grow and yield abundantly for several years, without any attention except the occasional use of the hoe. It is easily raised from seed, which is best sown in spring, either where the plants are to stand or, preferably, in a seed-bed. In the latter case, the seedlings are pricked out once before they are permanently planted out 16 in. apart every way. The leaves are eaten like Spinach, and it has been suggested to use the shoots, like Asparagus, as a very early vegetable, blanched by simply earthing them up.

An excellent vegetable for England, and deserves to be more generally planted. It is extensively grown by the Lincolnshire farmers, almost every garden having its bed, which, if placed in a warm corner and well manured, yields an abundant supply of delicious shoots a

fortnight before Asparagus comes in, and for some weeks afterwards. From a south border cutting generally commences early in April, and continues until the end of June. Some say they like it better than Asparagus. When properly grown, the young shoots should be almost as thick as the little finger, and in gathering it should be cut under the ground something the same as Asparagus. In preparing it for use, if the outer skin or bark have become tough, strip it off from the bottom upwards, and then wash and tie it up in bunches like Asparagus. It is best boiled in plenty of water. When tender, strain and serve simply, or upon toast. Some have melted butter with it, others eat it simply with the gravy and meat. In cultivation, the Mercury, as it is called also, will grow anywhere; but, to have it in the best form, good cultivation is necessary. To this end you cannot have the ground too deep nor too rich; plant as early in the spring as possible to get an abundant yield of shoots, and to get them as strong as possible. In planting, put the rows 18 in. apart, and the plants 1 ft. apart in the row. It is wild in some parts of England.

GOURDS

Cucurbita, L. *Cucurbitaceæ.*

French, Courges. *German*, Speise-Kürbiss. *Flemish* and *Dutch*, Pompoen. *Danish*, Grœskar. *Italian*, Zucca. *Spanish*, Calabaza. *Portuguese*, Abobora.

The cultivation of Gourds dates from a very early period, and few vegetables are more extensively grown. The almost innumerable varieties of them which are met with have long since induced the conclusion that they could not all have possibly originated from a single type, but to M. Charles Naudin belongs the credit of having first thrown light upon the chaos of species and varieties, and of having ascertained the origin and parentage of the different forms, all of which he refers to three very distinct species, viz. *Cucurbita maxima*, Duch., *C. moschata*, Duch., and *C. Pepo*, L. We shall describe in succession the varieties which have sprung from each of these different botanical types, following the classification of M. Naudin, and we may remark that we do not know any form of Gourd that should necessarily be considered a hybrid between any two of these species. Although the various forms of cultivated Gourds have, as we have just observed, originated from plants which differ in their botanical characteristics and also in their native habitats, they nevertheless, in their mode of growth and in their fruit, exhibit a striking resemblance, from which it is easy to understand how it was that they were for a long time supposed to be mere varieties of a single species. They are all annual climbing plants, furnished with tendrils; their stems are perfectly herbaceous, very long, pliant, and tough, angular and rough; the leaves are broad, with hollow stalks, and roundish or kidney-shaped lobes

sometimes more or less incised or deeply cut; the flowers are large, yellow, and monœcious; and the fruit is round or elongated, almost always ribbed, and with the seeds in a central cavity, surrounded by usually thick flesh. The plants grow very rapidly, and heat is indispensable for their development. Being originally natives of warm climates, they cannot be sown in France before May without the aid of artificial heat, and their growth is completely stopped by the early frosts, which make havoc of all their green parts.

CULTURE.—The seed is usually sown in the open ground in May. In order to forward the growth, round or square holes, of various widths and about 20 in. deep, are filled with manure, upon which is placed a layer of soil or compost from 6 to 8 in. thick. In this the seed is sown, two or three seeds being usually given to each hole. The space to be left between the plants varies according as the variety grown is of a more or less spreading habit of growth. For an early crop, the seed may either be sown in a hot-bed and the seedlings pricked out into another hot-bed before they are finally planted out, or it may be sown in pots placed on a hot-bed in which the plants are left until they are finally planted out. When very large fruit are desired, only two or three should be left on each plant, the best being selected, and the branches should be cut a few leaves beyond the last fruit. The readiness with which the stems of Gourds take root may also be turned to account by covering those stems which bear the finest fruit here and there with soil at the joints, where they soon strike root, especially if watered now and then, if needful. The effect of this is to increase the size of the fruit, in consequence of the additional supply of nutriment.

USES.—The fruit, whether young or fully grown, is cooked and sent to table in an infinite variety of ways, and there are also some varieties which are eaten raw, like Cucumbers. The only Gourd generally cultivated in England is the Vegetable Marrow, and the importance and value of the others, especially the keeping kinds grown in America and France, deserve to be better known here.

I. **Cucurbita maxima,** Duch., **and Varieties**

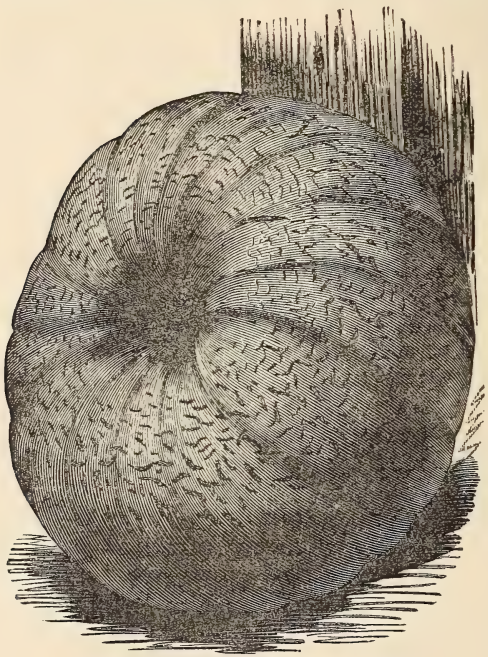
This species is the parent of the largest-sized Gourds; amongst others, of those known by the name of *Pumpkins.* All the cultivated varieties of *Cucurbita maxima* exhibit in common the following characteristics: The leaves are large, kidney-shaped, rounded, and never deeply divided; the numerous stiff hairs which cover all the green parts of the plant never become spiny; the segments of the calyx are united for a certain portion of their length, and the whole of this portion is devoid of well-marked ribs and presents only a

few veins or nerves ; the segments of the calyx are narrowed from the base to the extremity ; lastly, the stalk of the fruit is always roundish and without ribs, often thickens considerably after the flower has fallen, becomes cracked, and sometimes attains a diameter twice or three times that of the stem. The seeds are rather variable in size and colour, but always very smooth. Their germinating power lasts for six years. The principal varieties which have sprung from *Cucurbita maxima* are the following :—

PUMPKINS

French, Potirons. *Gorman*, Melonen-*oder*-Centner-Kurbiss. *Danish*, Centner-Grœskar. *Italian*, Zucca. *Spanish*, Calabaza totanera.

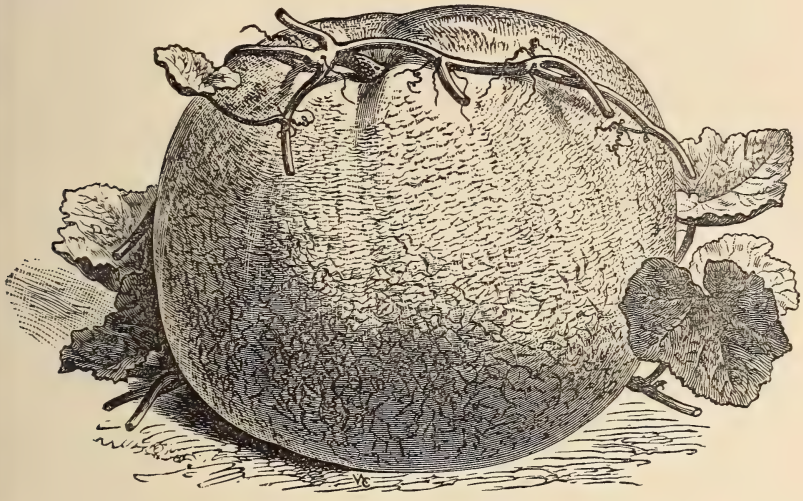
Under this name, which does not correspond to any botanical division, are grouped a certain number of varieties of *Cucurbita maxima* which are remarkable for the great size of their fruit. In France they are grown on a large scale for market, and also on farms for home use. At the Central Market in Paris Pumpkins may often be seen which weigh over a hundredweight each.



Long Yellow Pumpkin ($\frac{1}{10}$ natural size).

Large Yellow Pumpkin. — Stems climbing, from 16 to nearly 20 ft. long; leaves very large, round, or with five faintly marked angles, and of a dark green colour ; fruit very much flattened at the ends, and with well-marked ribs ; skin of a salmon-yellow colour, and slightly cracked or netted when ripe ; flesh yellow, thick, fine flavoured, sweet, and keeping good for a long time. In the United States, under the name of *Connecticut Field Pumpkin*, a variety is grown which resembles the present one, except in having a somewhat finer skin.

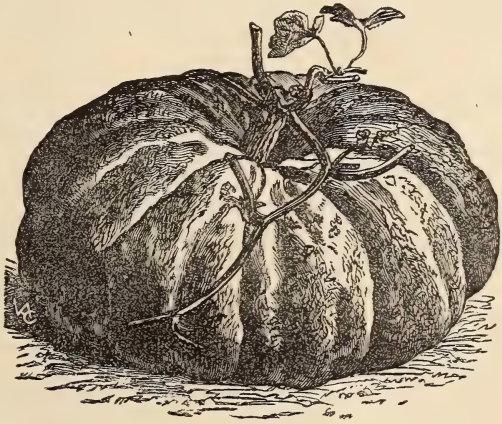
Globe Mammoth Pumpkin.—In some respects the fruit resembles that of the preceding sort. The colour is the same,



Globe Mammoth Pumpkin.

but it is spherical in shape. In size it surpasses it, however, and attains enormous dimensions. The flesh is yellow and delicate and keeps well during winter.

Étampes Pumpkin.—Fruit of medium size, not so broad as that of the Large Yellow Pumpkin, but relatively thicker; ribs broad and well marked; skin a very bright and distinct orange colour. The cultivation of this variety has been very much extended of late years, and it is now the kind which is most frequently seen in the Central Market at Paris. In its habit of growth it resembles the Large Yellow Pumpkin, but its leaves are rather paler. There are two forms of it, one of which has the fruit quite smooth. This we consider to be truer to name than the other form, which has the skin



Étampes Pumpkin ($\frac{1}{10}$ natural size).

of the fruit more or less cracked and netted. Some cultivators prefer the latter, saying that it has thicker flesh. It appears to us to be a reversion towards the Large Yellow variety.

Nicaise Pumpkin.

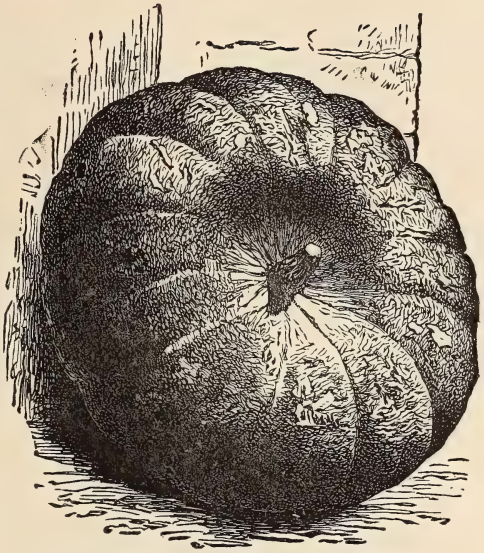
Nicaise Pumpkin.—A reduced form of the preceding, and rougher and more netted. Each plant can produce three or four small fruit, which for the use of small families is more convenient than two large fruit.

Large Green Pumpkin.—Fruit large, rather flattened, with a dark green skin, which is often cracked or netted when ripe. It is a good hardy variety, but the following kind is now rather more in favour.

Spanish Gourd or **Pumpkin.**—Stems 10 to 13 ft. long; leaves of medium size, roundish, of a dark green slightly tinged with ash colour; fruit of medium size or even small, very much flattened, hollowed on both ends; skin green, often very finely netted, which gives it a gray tint; flesh bright yellow, very thick, and keeping good for a very long time. This excellent variety, which is in very great demand in the markets, has the advantage of producing fruit of a moderate size, which are generally more convenient for family use than the very large kinds, which often become spoiled before the whole of them can be eaten, all kinds of Gourds being very difficult to keep after the skin is cut. When growing, the plant will carry two or three fruit well.

Spanish Gourd or Pumpkin.

Boulogne Gray Pumpkin.—The size of this fine variety approaches that of the old Large Green Pumpkin, but in the colour and appearance of the skin, and the quality of the flesh, it resembles the Spanish Gourd. The plant is of vigorous growth, pretty early, and very productive, with large broad leaves, and fruit which are often from $2\frac{1}{2}$ to 3 ft. across, and about half as thick. The skin is a dark olive colour, sometimes a little bronzy on the side next the sun, and marked with longitudinal bands of a slightly paler colour; the whole surface is also covered with a great number of very fine short parallel lines, which give it the gray tint from which the variety is named. The flesh is yellow, thick, and floury. The fruit of this variety keeps at least as long as that of the Étampes Pumpkin. It was raised a few years ago at Boulogne-sur-Seine, and has come extensively into cultivation, being in high repute with the market-gardeners about Paris.



Boulogne Gray Pumpkin ($\frac{1}{10}$ natural size).

Large Bronze-coloured Montlhéry Pumpkin.

Large Bronze-coloured Montlhéry Pumpkin. — Stem trailing, from 16 to 18 ft. long. Leaves numerous, erect, large, lobate, and intensely green. The fruit is round, with well-marked ribs and dark greenish brown

skin; flesh a beautiful yellow, and of excellent quality. It ripens rather later than the varieties described above, and keeps well long after the Étampes Pumpkin has disappeared from the market.

Warted Marrow Squash.—A vigorous plant, with stems from 13 to over 16 ft. long. Large leaves, dark green, round, or sometimes undulated in outline. This variety, raised in the neighbourhood of Bordeaux, is evidently very closely allied to the Turk's Cap or Turban Gourd, but differs from it in some very marked characteristics. In the first place, the enlargement in the upper part of the fruit is very slight, and sometimes altogether wanting; and in the next, the whole surface of the skin, when ripe, is covered with corky excrescences, somewhat like those seen on the skin of Netted Melons. This gives the variety a very distinct character. The flesh of the fruit is orange-coloured, very thick and sweet, and of excellent quality.

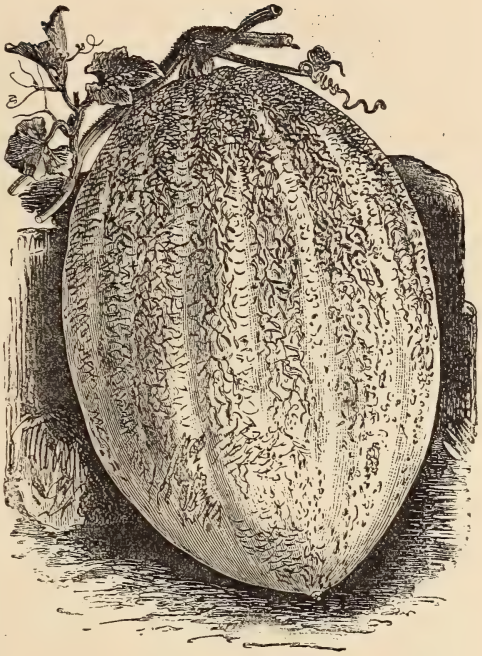
Warted Marrow Squash ($\frac{1}{8}$ natural size).

Chestnut Squash.—A vigorous plant, with stems from 13 to over 16 ft. long. Leaves round, entire, usually undulated at the edges. This is an excellent variety, with medium-sized or small fruit, somewhat flattened at the ends, but not concave, as Pumpkins often are. Ribs barely defined, or altogether wanting; skin smooth, of an intense brick-red colour; flesh deep yellow, very thick, sweet, floury, and keeping well. A plant may carry three or four fruit well.

Chestnut Squash ($\frac{1}{8}$ natural size).

Valparaiso Squash.—Stems trailing, from 16 to nearly 20 ft. long. Leaves entire, somewhat elongated, toothed and spiny at the edges, of a clear green colour, sometimes silvery gray on the upper surface; fruit oblong, narrowed at both ends, about 16 to 20 in. long, and 12 to 14 in. in diameter in its widest part, and shaped something like a Lemon; ribs faintly defined, or altogether wanting; skin white, slightly tinged with gray, covered, when ripe,

with a great number of small cracks or very fine tracings; flesh orange-coloured, sweet, and of delicate flavour. A plant, unless it is exceptionally strong, should not be allowed to carry more than two fruit. These often weigh from 27 to 33 lb. each, and even more, and are rather difficult to keep.



Valparaiso Squash.

Prolific Early Marrow.—A distinct and very interesting variety, in shape like the Hubbard Squash, but with the colour of the Chestnut Squash. A trailing plant, not usually more than 6 to 8 ft. in length, it branches out very little, and ceases altogether early in the season, after having produced three or four fruit. The fruit ripens earlier than those of any other Squash, and keeps well into winter. They are not large, and seldom weigh more than 6½ lb.

Prolific Early Marrow.

Boston Marrow Squash. — Skin orange-red; flesh salmon colour. Not quite so early as the Prolific Early Marrow, but in other respects differs little from it.

Hubbard Squash.—A very vigorous-growing kind, with trailing, branching stems, often 16 to nearly 20 ft. long. Leaves round, slightly sinuated, and very finely toothed at the edges. The fruit has a slight resemblance to that of

the Ohio Squash, but it is often shorter, more pointed at the stalk end, and is quite different in colour, being dark green, sometimes marbled with brick-red. The flesh is dark yellow, very floury, not very sweet, rather dry, and, in America, is considered to be of excellent quality; it also keeps good for a very long time. The skin is so hard and thick that it cannot always be cut with an ordinary knife. A plant will carry and ripen five or six fruit well.

Hubbard Squash ($\frac{1}{8}$ natural size).

Warted Hubbard Squash. — Only differs from the Hubbard Squash in having the skin completely covered with protuberances larger than in the type.

Golden Hubbard Squash.—Differs from the type in being orange-red.

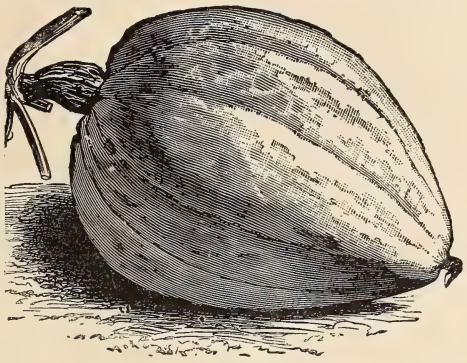
Marble-head Squash. — Another American variety; differs from the Hubbard only in being ashy gray.

Olive Squash. — A vigorous variety, derived from *C. maxima.* The fruit weigh from 6 to 11 lb., and in shape and colour resemble an olive. The skin is smooth, the rind thin, and the flesh golden-yellow, firm, very abundant, and of fine quality. Its weak point is its lateness in the climate of Paris.

Olive Squash.

Ohio Squash, or **Californian Marrow.**—A variety of American origin. Stem creeping, 16 to nearly 20 ft. long; leaves entire, round, kidney-shaped, or with five faintly marked lobes, sometimes

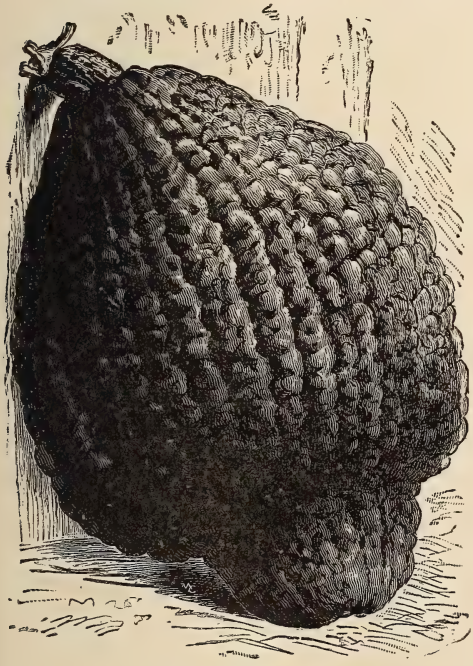
wavy at the edges. The fruit somewhat resembles that of the Valparaiso Squash in shape, but is not so long in proportion to its width, which is sometimes 10 in., while the length seldom exceeds 12 to 14 in.; ribs very faintly marked; skin almost quite smooth, of a light salmon-pink colour. The flesh is very floury, and in high repute in the United States, where this variety and the Hubbard Squash are two of the most extensively grown kinds.



Ohio Squash, or Californian Marrow ($\frac{1}{8}$ natural size).

A plant should not be allowed to carry more than three or four fruit.

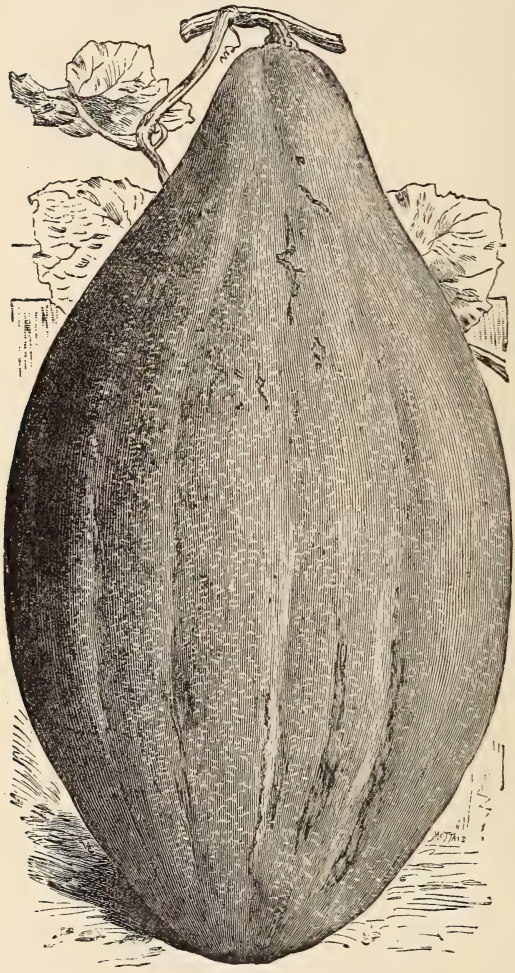
Large Warted Portugal Squash.—Resembles the preceding, but is larger. Other points of difference are its bright orange-red colour and warted ribbed skin. The flesh is sweet, abundant, and a fine dark yellow.



Portugal Squash.

Mammoth Whale Gourd.—This is one of the largest Gourds of the series of the *Cucurbita maxima*, often measuring over a yard in length and weighing as much as $\frac{3}{4}$ to 1 cwt. Its shape is long, thick in the middle and narrowed at both ends, especially at the stalk end. Its colour is gray-green. The flesh is a fine orange-yellow, and of excellent quality; it keeps a long time. This Gourd appears to have been derived from a Pumpkin, but instead of being a globe shape, it lengthened out, the seed cavity being reduced to a small size, to the advantage of the fleshy part.

Turk's-cap, or Turban, Gourd.—A very distinct kind of Gourd, well known everywhere from its peculiar shape, for which it has received the common name of Turk's-cap, or Turban, Gourd. There is an almost infinite number of forms of it, all of the characteristic turban shape, but differing from one another in the size and colour of the fruit. The kind which is most commonly grown, and which may be considered the type of the variety, produces fruit weighing from about 6 to 9 lb. each, bearing on the end farthest from the stalk a cap-shaped enlargement, which is sometimes hemispherical, and sometimes with four or five deeply cut ribs. The fruit is hardly ever uniform in colour, being often variegated in a variety of ways, most frequently with dark green, yellow, and red. One of these colours is often absent, and sometimes the fruit is entirely of a dark green hue. The flesh is of a fine orange colour, and is thick, floury, and sweet.



Mammoth Whale Squash.

Small Chinese Turban Gourd.—Introduced from China by the authorities of the Museum of Natural History at Paris, it is a very distinct plant, and appear to possess a considerable degree of merit. It differs from the Gourds hitherto known in Europe, in the small size of its fruit, which do not usually exceed 2 or 3 lb. each

in weight. They are generally of a bright red colour, marked longitudinally with yellow and dark green. The crown is well marked, but usually not very prominent. Flesh yellow, firm, floury, and sweet. A plant may carry ten fruit or even more. They ripen pretty early, and keep admirably.

Turk's-cap, or Turban, Gourd (⅛ natural size).

Small Chinese Turban Gourd (⅛ natural size).

This is one of the few kitchen-garden vegetables which we have received ready-made from China.

Other Varieties of *Cucurbita maxima*

Sometimes, under the name of *Courge de Chypre* (Cyprus, or Musk, Gourd), a variety is met with which is of medium size, slightly flattened, with very faintly marked ribs, and with a smooth gray skin, variegated or marbled with pale green or pink. This kind does well in the south of France, but is rather late for the climate of Paris. The same applies to the *Valencia Gourd*, the fruit of which is larger, almost as thick as it is long, ribbed like a Melon, and ashy green. The *Mission Gourd* is a small milky white variety, flattened, with numerous prominent ribs. It weighs less than 2 lb., and often much less, but one plant can produce as many as a dozen fruit. To *Cucurbita maxima* must also be referred a variety of Gourd which does not climb

Valencia Squash.

or creep, and was introduced from South America, twenty years ago, under the name of *Zapallito de Tronco*. It is not a productive kind, and seems to have gone out of cultivation. In North America, under the name of *Essex Hybrid Squash*, or *American Turban*, a variety is grown which has thick, almost cylindrical fruit, with the crown hardly defined, and of a uniform salmon-pink colour, almost exactly resembling the tint of the *Ohio Squash*.

II. Cucurbita moschata, Duch., and Varieties

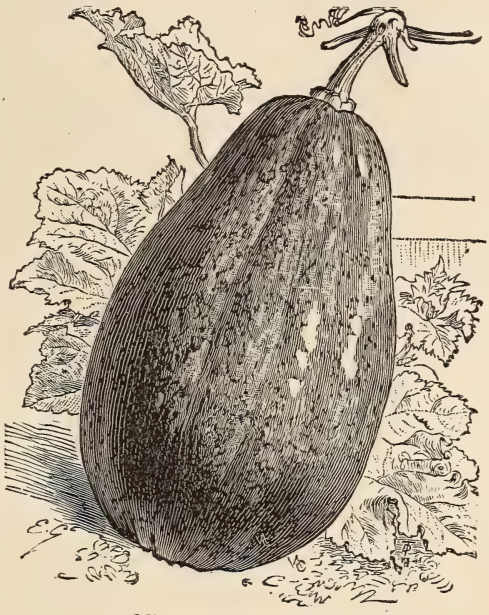
The varieties which have sprung from this species have all long running stems, which readily take root, and are covered (as are also the leaves and leaf-stalks) with numerous hairs, which never become spiny. They are also distinguished by having the fruit-stalk (which is pentangular or sexangular, like that of *Cuburbita Pepo*) swollen where it joins the fruit. The leaves are not cut, but exhibit well-marked angles, and are dark green relieved by blotches of silvery white produced by a thin layer of air under the skin, which rises here and there between the principal veins or nerves. The calyx has the segments divided almost as far as the stalk, and often broader at the extremity than at the base ; they sometimes become leafy. The seeds are variable in size, but always a dirty white, and margined and covered by a loosely adhering membrane or skin, which often becomes detached here and there, giving the seeds a shaggy appearance. Their germinating power lasts for six years. This species derives its name from the musky flavour which all the varieties of it possess, to a greater or less extent, in the flesh of the fruit.

Carpet-bag Gourd, or Naples Squash ($\frac{1}{8}$ natural size).

Carpet-bag Gourd, or Naples Squash.—Stem trailing, 10 to 13 ft. long ; leaves medium-sized, entire, rounded or five-angled, of a deep and rather dull green, with veins and spots of whitish gray, clearly relieved on the green ground : fruit large, 20 in. to 2 ft. long, and 6 to 8 in. broad in its widest part. The part next the stalk is nearly cylindrical, but the lower part is more or less swollen, and it is only in this part that seeds are found, the upper part being solidly filled with flesh without any central cavity. Skin smooth, dark green, becoming yellow when the fruit is quite ripe ; flesh orange coloured, very abundant, sweet, perfumed, and keeping well. This variety is very productive, and the fruit is of excellent quality. It has no fault except that

it ripens rather late. The *Courge Pleine d'Alger* and the *Courge des Bédouins* appear to be identical with this kind. In Italy a gigantic variety is grown, the fruit of which, usually slightly curved, often measures upwards of 3 ft. in length, and weighs from 33 to 44 lb.

Early Carpet-bag Gourd, or **Early Neapolitan Squash.** — This variety resembles the preceding one in habit of growth, and only differs from it in the smaller size of its fruit, and its much greater earliness, which renders it a very valuable plant, and one to be recommended for the climate of the north of France in preference to the previous variety.



Mirepoix Musk Squash.

Mirepoix Musk Squash.—Stem strong and trailing, leaves large, erect, with rounded lobes. Fruit pear-shaped, slightly ribbed, dark green streaked with light green. The flesh is dark red, firm, fragrant, and keeps well. A variety raised in the south of France, ripens well at Paris, but not so well farther north.

Yokohama Gourd ($\frac{1}{8}$ natural size).

Yokohama Gourd.— The only flat-fruited variety of *Cucurbita moschata* that we know of is the Yokohama Gourd, a Japanese variety that has often been introduced into Europe. It is a plant of very rampant habit and somewhat late in ripening. Fruit flattened in shape, especially on the portion surrounding the eye, generally twice as broad as long, sometimes even more so, of a very dark

green colour, with irregularly formed ribs, and the skin indented and wrinkled, and like that of the Prescott Cantaloup Melon. It has been named *C. meloniformis* (*Rev. hort.* 1880) by M. Carrière.

Canada Crook-neck, or Winter, Gourd ($\frac{1}{6}$ natural size).

Canada, or Winter Crook-neck, Gourd.—This pretty little Gourd is closely allied to the Early Neapolitan Squash, but differs from it chiefly in having the portion of the fruit which is next the stalk completely filled with flesh (as in the Naples Carpet-bag Gourd), and usually curved like the neck of a swan, in which respect it resembles the Siphon Gourd. It possesses the good qualities of earliness and excellent flavour, and also keeps well. The plant is of small size, the stems seldom exceeding 5 or 6 ft. in length. It is therefore well adapted for gardens of moderate extent.

Other Varieties of *Cucurbita moschata*

There are also some forms of this species in which the fruit is not elongated, but rounded or even flattened. Among the first of these we may mention the Bordeaux Melon Squash—a vigorous-growing plant, bearing great numbers of fruit, which are nearly cylindrical, flattened at both ends, something like a drum, as broad as they are long, and with faintly defined ribs. It is a productive variety, with fruit of excellent quality, but rather late in ripening. The *Courge à la Violette* of the south of France and the *Courge Pascale* are two varieties closely allied to the preceding one, and, like it, have almost spherical fruit.

III. Cucurbita Pepo, L., and Varieties

This species is the parent of a very great number of cultivated varieties, all of which exhibit the following characteristics of the type: Leaves with lobes always well defined, and often deeply cut; hairs becoming spiny here and there; fruit-stalks pentangular or five-ribbed, never swollen under the fruit, and becoming exceedingly hard when the fruit ripens; segments of the calyx united for some part of their length, and often slightly contracted

below the commencement of the divisions ; the part between the stalk and the contractions usually has five prominent ribs, and the segments of the calyx are narrowed from the base to the extremity. The seed varies very much in appearance, but is always winged or margined, and is seldom as large as that of the varieties of *Cucurbita maxima*. The seed of the Custard and Fancy Gourds is much smaller. The germinating power of the seed of all kinds of Gourds, except the Large Tours Pumpkin, lasts for six years or more.

Vegetable Marrow.

Vegetable Marrow. —A plant with long, slender, running stems. Leaves of medium size, deeply cut into five lobes, which are often undulated or toothed at the edges, of a dark green colour, sometimes variegated with gray spots, and very rough to the touch ; fruit oblong in shape, 10 to 16 in. long, and 4 or 5 in. in diameter, with five or ten ribs more or less well marked, but most prominent on the part next the stalk ; skin smooth, of a dull yellow or yellowish white colour. The fruit is generally eaten when it is less than half grown, as the flesh is then very tender ; when ripe, it is rather dry.

Culture. — The Marrow will grow anywhere if supplied with plenty of manure and moisture at the root. For early Marrows the seed should be sown in pots and placed in a gentle heat any time in April ; when they have made two pairs of rough leaves they may be hardened off ready for planting early in June. Hand-lights should be placed over them for a few days after planting, until they become established. It is a bad practice to keep the lights on too long, inasmuch as the plants do not grow any faster and they are liable to mildew—the latter disease being the only drawback to growing Marrows in pits or frames. Some gardeners sow earlier and plant earlier, but there is seldom anything gained by it unless in exceptionally favourable seasons. Marrows are generally planted on old refuse-heaps, or old manure beds, which places are well suited to their growth. We have

seen them planted on great heaps of decayed leaf-mould; on this they grow and fruit amazingly. They may, however, be successfully grown in any ground by taking out a few spits of earth and digging in a barrow-load of manure. Summer Marrows do well planted in old ditches or dykes that are comparatively dry during the summer months. The usual time for sowing seed of Marrows is in May and June, and it is sown where it is to remain, having a flower-pot or hand-light placed over it until it has germinated. It is a good plan to soak the seed in water for a few hours previous to sowing. The same remarks as to culture apply to all the tribe of Gourds.

Long Yellow Vegetable Marrow.—Runner stem 16 to 18 ft. long, with broad, lobate leaves. The fruit is three times as long as it is thick, and not longer than 16 or 18 in. Skin pale yellow, turning to gold as it ripens, smooth or slightly ribbed on the upper half next the stalk. It resembles the old Vegetable Marrow, but is longer and less ribbed. The flesh is more delicate too, and is at its best when the fruit is about half grown.

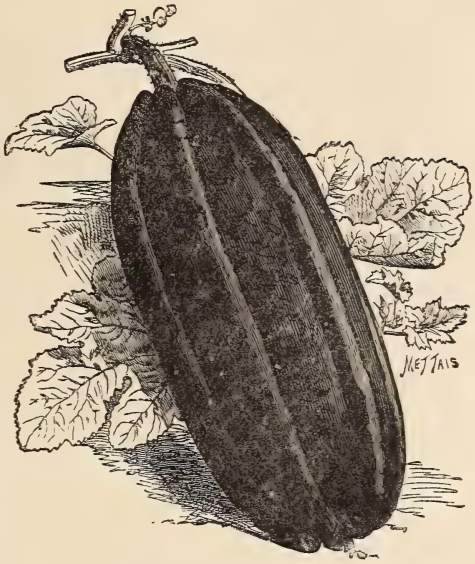
Brazilian Sugar Gourd.—A plant with long, slender, running stems. Leaves lobed, rough, of a very dark green colour, and finely crimped and puckered; fruit oblong, rather short, swollen in the middle, with five faintly marked ribs, and sometimes slightly warted; skin green, turning orange when ripe; flesh yellow, thick, and very sweet. This variety is highly to be recommended, on account of its earliness, and the abundance and good quality of its fruit, which keeps for a long time. It ripens half-early.

Brazilian Sugar Gourd.

Patagonian Squash.—A plant with very long running stems, and large, lobed, dark green leaves. Fruit from 12 to 20 in. long, and 6 to 8 in. across, traversed from end to end by five very regular ribs, which form so many prominent rounded flutings; skin smooth, of an extremely dark green, almost black, a colour which it retains when ripe; flesh yellow, of medium quality. This variety is remarkable for its hardiness and productiveness.

Under the name of *Alsatian Gourd*, a variety has been highly spoken of which resembles the Patagonian Squash, except that the fruit is less angular and of a lighter green colour. When the

fruit of this variety is full grown, but before it is ripe, it is used in salads, cut in slices, and seasoned in the same way as Gherkins. With care, it will keep for some time in winter.



Patagonian Squash.

Long White Bush Marrow.—This variety is very distinct in its habit of growth. The stems, instead of running, remain very short and rather thick, bearing closely set leaves of a dark green colour with a few gray blotches, and deeply cut and toothed at the edges. Fruit longer than that of the Vegetable Marrow, being from 14 to 20 in. in length, with a diameter of 5½ or 6 in., narrowed towards the stalk, and traversed by five ribs. Like the Vegetable Marrow, the fruit of this variety is usually eaten before it is fully grown, the plant continuing to produce new fruit in succession.

Long White Bush Marrow.

Italian Vegetable Marrow.—A very distinct variety. Stems not running, very thick and short, producing numerous leaves of a dark green colour, very large, and very deeply cut into five or six lobes, which are also more or less notched. The luxuriant foliage forms a regular bush. Fruit very much elongated, being 20 in. or more in length, with a diameter of 3 to 4 in., furrowed by five ribs, which are most prominent on the part next the stalk,

where the fruit is also narrowest; skin very smooth, of a dark green, marbled with yellow or with paler green. All through Italy, where this Gourd is very commonly grown, the fruit is eaten quite young, when it is hardly the size of a small Cucumber, sometimes even before the flower has opened, when the ovary, which is scarcely as long or as thick as the finger, is gathered for use. The plants, which are thus deprived of their undeveloped fruit, continue to flower for several months most profusely, each producing a great number of young Gourds, which, gathered in that state, are exceedingly tender and delicately flavoured. This should be tried in England, and the same excellent way of gathering young adopted.

Italian Vegetable Marrow.

Geneva Bush Squash. — Stems not running; leaves long-stalked, of medium size and clear green colour, rather deeply cut into elongated lobes which are toothed at the edges; fruit numerous, small, very much flattened, 5 or 6 in. in diameter and 2 or 3 in. in depth; skin smooth, brownish green, turning orange when ripe; flesh yellow, and not very thick. The fruit is eaten young, before it is fully grown, like the Vegetable Marrow.

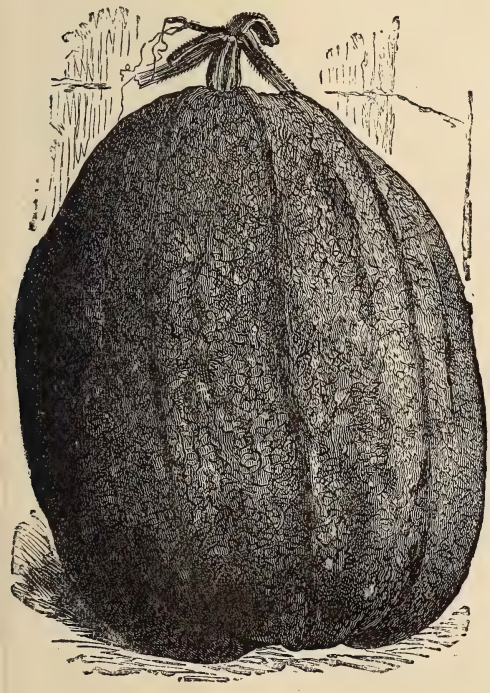
Bush Nice Squash.—Probably a sub-variety of the Geneva Bush Squash, which it closely resembles. It is much grown, under the name of Cougourdon, by the gardeners of the Riviera for the winter markets, *i.e.* December to March. It is grown in the open ground, with some kind of protection on the north side, and is covered up during the night. There are two forms, one round, resembling the Geneva Squash, but flatter; the other long, and very like the Vegetable Marrow. The fruit is eaten when scarcely one-third of its full size. It is then dark green. When ripe, the skin is smooth and orange-red, like the Geneva Squash.

Geneva Bush Squash.

Early Bush, or Summer Crook-neck, Squash.—This plant is not a climber or trailer, but forms a tuft like the Custard Marrows. Leaves of a

clear green, large, toothed at the edges, and more or less divided into three or five rather pointed lobes; fruit of a very bright orange colour, elongated, covered with numerous roundish excrescences, narrowed and most usually curved in the part next the stalk, and swollen at the other end, which, however, always terminates in a point. This variety is less grown for the table than for ornament, like the Fancy Gourds. From the hardness of its skin, the fruit is easily kept all through the winter, and never loses the fine orange colour which is peculiar to it.

Bush, or Crook-neck, Squash ($\frac{1}{6}$ natural size).



Large Tours Pumpkin.

Large Tours Pumpkin.—Stems creeping, 16 to 20 ft. long; leaves very large, dark green in colour with a few gray blotches, sometimes entire, but most usually divided into three or five lobes; fruit round or long, generally flattened at both ends, with faintly marked ribs, and a smooth skin of a pale or gray-green colour marked with deeper bands and marblings. The fruit often weighs from 90 to 110 lb. Its flesh is yellow, not very thick, and of middling quality. The seed is very large. Its germinating power lasts for only four or five years. This variety is generally grown for feeding cattle only.

Custard Marrow.—The Custard Marrows are some of the most curious

varieties which have sprung from *Cucurbita Pepo*. They are not climbing or creeping plants, and have large leaves, of a clear green colour, entire, or with five faintly marked lobes. The fruit is very much flattened, and is much broader than long, and the outline, instead of being rounded, exhibits five or six projections or blunt

Elector's-cap, or Custard, Marrow ($\frac{1}{6}$ natural size).

Yellow Custard Marrow.

teeth, which are either diverging from, or more or less curved back towards the stalk end of the fruit. The fruit of all the Custard Marrows is pretty solid, and the flesh is firm, not very sweet, but rather floury; the skin is very smooth, and variable in colour and thickness. The seed is very small, compared with that of the other varieties of *Cucurbita Pepo*.

White Bush Scallop Custard Marrow.

The following are the most commonly grown varieties:—

Yellow Custard Marrow.—This seems to be the original variety or type of the cultivated Custard Marrows. The skin of the fruit is a uniform butter-yellow, and the teeth or divisions of the crown are very prominent and curved back in the direction of the stalk.

Green Custard Marrow.—Fruit (unripe) dark green, nearly entirely so, or faintly marbled. The colour is very deep at first, but turns yellow as the fruit ripens.

Orange-coloured Custard Marrow.—Like the preceding kind in shape, but of a far more vivid colour, resembling that of a ripe Orange.

White Bush Scallop Custard Marrow.—A milky white coloured variety with very large flat fruit.

Striped Custard Marrow.—Stems often running; fruit rather small, with faintly marked teeth, and very prettily variegated with green and white.

White Flat Warted Custard Marrow.—Fruit with faintly marked lobes or teeth; skin creamy white, covered all over with roundish warts.

All these varieties produce numbers of small fruit. A strong plant may be allowed to carry ten or twelve.

Improved Variegated Custard Marrow ($\frac{1}{6}$ natural size).

Improved Variegated Custard Marrow is distinguished from the preceding kinds by the much greater size of its fruit, which often weighs 7 or 8 lb. A plant should not, as a rule, be allowed to carry more than three or four. In shape and colour the fruit resembles that of the Common Variegated Custard Marrow.

Under the name of *Pineapple Squash*, *Potato Squash*, or *Congo Squash*, a variety is grown in the United States which is yellow in colour, and long conical in shape, and differs also from our European varieties in being trailing.

FANCY GOURDS

French, Coloquintes. *German*, Kleine Zierkürbisse. *Dutch*, Kawoerd appel. *Italian*, *Spanish*, and *Portuguese*, Coloquintida.

The true Colocynth is an exclusively medicinal plant, and seldom cultivated, and the name Colocynth is a misapplication only sanctioned by usage, when it is employed to denote a large number of varieties of Gourds with small fleshy fruit, the chief merit of which consists in the elegance or singularity of their shape, and the handsome colours which they exhibit when ripe. The skin of these fruit usually becomes very hard, and the pulp in the interior dries up rather quickly, in consequence of which they keep much longer than most of the edible kinds. In habit of growth the Fancy Gourds, or Colocynths, resemble the varieties of *Cucurbita Pepo*. The stems, leaves, flowers, and fruit are generally

of smaller size than those of any of the kinds hitherto described in this volume, but the characteristics of all those parts, and also of the calyx and flower-stalk, indicate the origin of the varieties clearly enough; and yet the Custard Marrows, which all are agreed to consider the undoubted offspring of *Cucurbita Pepo*, may be said to form, by their small hard-skinned fruit, a true connecting link between the Fancy Gourds and the edible kinds described in the Vegetable Marrow section. The Fancy Gourds have generally, if not always, long climbing or creeping stems, and, on this account, are very often grown as ornamental plants on trellises, arbours, etc. As they grow very rapidly, they are very useful for quickly covering bare surfaces with verdure, and their numerous and usually prettily variegated fruit are highly ornamental late in autumn and up to the first appearance of frosty weather. The number of varieties is almost unlimited, and new kinds are constantly being raised from seed. As it would be impossible to enumerate them all here, we shall confine ourselves to the description of the best established and most generally cultivated kinds.

Pear Gourd.—One of the most common forms of Fancy Gourds is the elongated shape, with a spherical or ovoid swelling

Pear Gourd.

Ringed Pear Gourd.

at the end farthest from the stalk. The varieties which have fruit of this shape are known by the general name of Pear Gourds, and differ more or less from one another in colour, as the White Pear Gourd, the skin of which is smooth and entirely milk-white; the Striped Pear Gourd, which is dark green in colour, marked with irregular longitudinal bands, or rows of spots, which are either white or of a much paler green than the rest of the fruit; the Two-coloured Pear Gourd, one half of which is yellow, and the other a uniform green; the Ringed Pear Gourd, in which the green

colour, instead of covering half the fruit, only forms a ring round it of greater or less width. These different variegations may also be found combined with one another in various ways, as in some two-coloured fruits which have the yellow part of a uniform tint, while the green part is striped or banded with different colours. All the varieties of Pear Gourds generally exhibit the following characteristics: The plants are of medium size, the stems seldom exceeding from 6½ to about 10½ ft. in length. Leaves of moderate size, dark green, nearly entire, with five roundish angles, or divided into five faintly marked lobes.

Several varieties of Fancy Gourds have fruit almost spherical in shape or slightly flattened at the ends, like an Apple or an Orange. Of these the following are the most commonly grown kinds:—

Early Apple Gourd.—Stems of moderate length, not exceeding from 6½ to about 10 ft.; leaves medium-sized, gray-green, cut into five lobes with toothed edges; fruit nearly spherical, flattened at the ends, especially at the end farthest from the stalk; skin very smooth and entirely white.

Orange Gourd.—The fruit of this variety is similar in shape to that of the preceding one, but of a fine orange colour. Leaves large, divided into five lobes more or less deeply cut, of a dark green colour, and often slightly crimped. The fruit exactly resembles a ripe Orange in size and colour.

Miniature Gourd.

Miniature Gourd.—A small plant with thin slender stems, seldom more than about 6½ ft. long. Leaves dull green, with grayish blotches, sometimes nearly entire, but most usually divided into three (rarely into five) round lobes; fruit generally rather flat at the ends, about 2 in. in diameter, and variegated with pale green on a darker green ground, almost like the Striped Pear Gourd.

White-striped Flat Fancy Gourd.—A vigorous-growing variety, with stems 10 to 14 ft. long. Leaves largish, divided into five lobes, which generally terminate in rather sharp points; fruit very much flattened transversely, much broader than long, 2 or 3 in. in diameter, and striped or marbled with various shades of green. The peculiar shape and regular markings of this Gourd give it quite a unique appearance, and would lead one to think, at first sight, that it belonged to some species very different from

Cucurbita Pepo. There are, in fact, some small kinds of wild Melons to which it bears a striking resemblance.

Egg Gourd.—A vigorous-growing plant, with stems often 13 ft. long. Leaves large, of a rather dark green colour, entire, five-angled, or divided into five faintly marked lobes. Fruit entirely white, and of the shape and size of a hen's egg.

Warty-skinned Fancy Gourd.—Stems rather thick, but not very long, seldom exceeding about 6½ ft. in length; leaves of a clear green colour, shining, slightly crimped, entire, rounded, or divided into three lobes faintly toothed on the edges; fruit usually spherical, and having the skin entirely covered with numerous round excrescences, of variable colour, sometimes green, but most usually white or orange. The stems of this variety, instead of

White-striped Flat Fancy Gourd ($\frac{1}{10}$ natural size; detached fruit, $\frac{1}{6}$ natural size).

Warty Fancy Gourd ($\frac{1}{10}$ natural size).

being slender and pliable like those of the other kinds of Fancy Gourds, are stiff and stout, as if the plant had a tendency to grow without any support. The plant does not branch much.

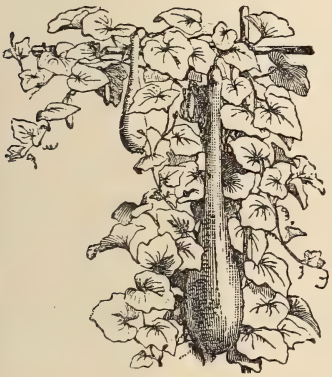
BOTTLE GOURDS

Lagenaria vulgaris, Ser.; *Cucurbita Lagenaria*, L. *Cucurbitaceæ.*
Courge bouteille.

Native of South America.—Annual.—Like the Fancy Gourds, or small varieties of *Cucurbita Pepo*, the different varieties of *Lagenaria vulgaris* are much more grown for ornament than for any use that is made of them. The Common Bottle Gourd, the double swollen fruit of which is familiar to most people, is almost the only kind that is turned to any account in the way of practical utility, its dried fruit, when the flesh is removed, forming an excellent substitute for bottles and other vessels. The very rapid growth of this plant, the abundance and beauty of its large white flowers, and

the shape and extraordinary dimensions of the fruit of some of its forms, render it a valuable ornamental climbing plant. As it is easily grown, it appears to be cultivated in every part of the world where the climate is warm or temperate. From an early period it has been grown by the Chinese and the Japanese, who possess some varieties of it differing somewhat from those grown in Europe.

CULTURE.—The Lagenarias are annual plants vegetating very rapidly, and their culture is exceedingly simple. The seed is sown, where the plants are to stand, in May, or plants previously raised in hot-beds or frames may be planted out in the open ground that month. These, of course, will bear sooner than the others. The plants like good, rich, well-manured soil, and plentiful waterings, although not absolutely necessary, will help to increase the size and



Club Gourd.

Siphon Gourd ($\frac{1}{12}$ natural size).

beauty of the fruit. No variety of Bottle Gourd ripens its fruit regularly in the climate of Paris.

USES.—The young fruit is eaten in some countries like the Vegetable Marrow, but is not very desirable for table use, and the plant should be regarded as purely ornamental. Its rapid growth renders it valuable for quickly covering trellises, arbours, trunks of trees, dead walls, and other bare places. The leaves and all the green parts of the plant, when bruised, give out a very strong and disagreeable odour, but the flowers, on the contrary, are scented almost like Jasmine.

Club Gourd.—Fruit very long, sometimes over $3\frac{1}{4}$ ft. in length, almost cylindrical, but only about half as thick in the half next the stalk as it is in the other half. Sometimes the extremity is greatly swollen. All the forms of this plant, however, are extremely variable, and as changeable as the whims of amateurs.

Siphon Gourd.—The fruit of this variety is swollen at the extremity into a spherical or slightly flattened enlargement, 8 to

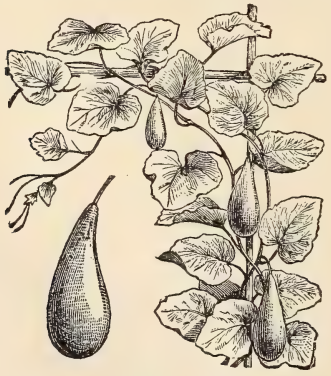
12 in. broad, and about one-third less in depth; the rest of the fruit forms a long thin neck, which is curved into a semicircle in the part next the stalk. When growing, the fruit should rest on the ground

Common Bottle Gourd ($\frac{1}{12}$ natural size).

Miniature Bottle Gourd.

or some other support, otherwise the neck will be broken by the weight of the enlarged lower part.

Common Bottle Gourd.—Fruit contracted about the middle, and presenting two unequal divisions, of which the lower one is larger and broader than the other, and sometimes flattened at the base, so as to allow the fruit to rest firmly upon it; the upper division, next the stalk, is almost spherical. There is a certain number of forms of this variety, all of which bear fruit of nearly the



Powder-horn Gourd.

Flat Corsican Gourd.

same shape, but of extremely variable dimensions, some of them being nearly 20 in. long and capable of containing at least two gallons, while others are seldom more than 5 or 6 in. in length,

with a capacity of less than a pint, and they are found of all sizes between these extremes.

Miniature Bottle Gourd.—A small form of the preceding, with very handsome fruit about 3 or 4 in. long. A very prolific variety, each plant producing as many as fifty fruit.

Powder-horn Gourd.—Fruit of a more or less long pear-shape, with a well-marked neck, and variable in size. They can be applied to the same kind of purposes as the fruit of the preceding kind, and are used as powder-horns in some country places.

Flat Corsican Gourd.—A remarkably distinct variety, with rounded flat fruit, rather like that of the Yokohama Gourd in shape, but quite smooth and without ribs. It is from 6 to 8 in. in diameter and 3 or 4 in. thick.

WAX GOURD

Benincasa cerifera, Savi. *Cucurbitaceæ. Courge à la cire.*

Native of India and China.—Annual.—A creeping plant, which spreads on the ground like a Cucumber-plant, with slender sharply five-angled stems from 5 to 6½ ft. in length. Leaves large, slightly hairy, rounded, heart-shaped, and sometimes with three or five faintly marked lobes ; flowers axillary, yellow, with five divisions, which extend almost to the base of the corolla, broadly cup-shaped, and 2 in. or more in diameter ; calyx reflexed, rather large, and often petaloid. Fruit oblong, cylindrical, very hairy up to about the time of ripening, when it attains a length of from 14 to 16 in., with a diameter of 4 or 5 in. It is then covered with a white bloom, like that which is seen on Plums, but much whiter and more abundant, and constituting a true vegetable wax. Seeds flat, gray, truncate. Their germinating power lasts for ten years. Its culture is similar to that of other kinds of Gourds. The fruit is eaten like that of other Gourds. The flesh of it is extremely light, slightly floury, and intermediate between that of a Gourd and a Cucumber. The fruit will keep pretty far into the winter.

HOP

Humulus Lupulus, L. *Urticaceæ.*

French, Houblon. *German*, Hopfen. *Flemish*, Hop. *Italian*, Luppolo. *Spanish*, Lupulo.

Native of Europe.—Perennial.—This is not, properly speaking, a kitchen-garden plant, but as, in some countries, the young shoots are often used as table vegetables, we think it should be noticed in this book. When the plants commence to shoot in spring, most of the shoots are pinched off, so as to leave only two or three of the strongest to each plant. The shoots thus removed are used as vegetables. In Belgium the young shoots are much used as a table vegetable, prepared in the same way as Asparagus or Salsafy.

HOREHOUND

Marrubium vulgare, L. *Labiatæ.*

French, Marrube blanc. *German*, Andorn. *Italian*, Marrubio.

Native of Europe.—Perennial.—A common roadside plant, often growing on slopes with a southern aspect. Stems numerous, erect, entirely covered with a white down; leaves almost square, with roundish angles, toothed and netted, and of a gray-green colour; flowers white, in compact rounded whorls, growing in numerous tiers to the top of the stem; seed small, oblong, brown, pointed at one end and rounded at the other, compressed, and with two or three faces. Its germinating power lasts for three years. The seed is sown, where the plants are to stand, in spring; or they may be propagated by division of the tufts at the same time. The plants are perfectly hardy and require no attention while growing. The leaves are used for seasoning, or as a popular cough remedy.

Horehound.

HORSE-RADISH

Cochlearia Armoracia, L. *Cruciferæ.*

French, Raifort sauvage, Cran. *German*, Meerettig, Krän. *Flemish*, Kapucienen mostaard. *Dutch*, Peperwortel. *Danish*, Peberrod. *Italian*, Rafano. *Spanish*, Taramago. *Portuguese*, Rabao de cavalho.

Native of Europe.—Perennial.—Root cylindrical, very long, penetrating deeply into the ground, with a slightly wrinkled yellow-white skin; flesh white, somewhat fibrous, very hot to the taste, something like mustard; radical leaves long stalked, oblong oval, about 16 in. long and 5 or 6 in. broad, toothed, light green in colour, and shining. The first leaves, which make their appearance immediately after winter, are reduced to mere nerves and resemble a small comb. As the season advances, the blade of the leaf

becomes developed and assumes its ordinary size and appearance. Flower-stems 20 in. to 2 ft. high, branching at the top, and smooth; flowers white, small, in long clusters; seed-vessels small, rounded, and almost always barren.

Horse-radish (⅓ natural size)

CULTURE.—The plant delights especially in good, deep, moist soil. It is propagated from pieces of the root, which are planted, immediately after winter, in rows 20 in. to 2 ft. apart, and with a distance of about 10 in. from piece to piece in the rows. The ground should be very deeply dug and well manured before planting. The better the soil is prepared, the more abundant will be the produce and the better the quality of the roots. They may be used in the autumn succeeding the spring in which they are planted, but the yield will be greater if they are left undisturbed for another year. It is a good plan to renew the plantation, at least partially, every year; but in many gardens people do not trouble themselves about the Horse-radish, except to gather the roots, the fragments which remain in the ground sufficing to keep up the supply for an indefinite period; the results, however, are more satisfactory when the plants receive some attention.

CULTURE.—A correspondent of the *Garden* gave the following method of growing Horse-radish, by which he claimed to have produced in ten months sticks that measured from 5 to 8 in. in circumference:—"During February, take small straight pieces of the roots about the size of, or somewhat smaller than, the little finger; from these remove all the side-shoots and roots, and form them into straight sets from 8 to 14 in. long. Prepare a piece of ground by deeply digging and well manuring it, and plant the sets in it in rows 3 ft. apart and from 12 to 18 in. in the rows. The sets must be planted in a slanting position, and must not be more than 2 in. beneath the surface. The ground at all times must be kept free from weeds, and should be well watered in very dry weather. Planting the set at an angle—in fact, in nearly a horizontal position—is, no doubt, the great secret of success: for, being placed so near the surface, it has the full benefit of the sun's heat, which causes it to make rapid growth long before that which is planted according to the old method—*i.e.* from 18 to 20 in. deep, and in a perpendicular position—reaches the surface. I am certain that want of success is to be attributed to this alone, and that the experience of any of your readers who may think fit to adopt my plan will be the same as my own." Mr. Bradley, of Preston Hall, grows his Horse-radish by sinking a common round drain-tile 2 in. in the ground,

filling the tile with fine earth, and planting a set near the top of the tile and 10 in. above the surface. He says it is an admirable plan; digging for the root is saved, and a fine clean stem is the result. Mr. R. Gilbert says that by placing leaves or litter on the tops of Horse-radish crowns 2 ft. or so thick, the plants grow through them in the course of the summer, making small white roots the thickness of one's finger, which are as tender as spring Radishes, and a great improvement on the stringy stuff often supplied with our roast beef. For winter use a supply of Horse-radish should always be at hand, stored away in sheds, and covered with dry soil or sand, in the same way as Carrots, etc.

Horse-radish is not grown to a very great extent in London market-gardens; but where it is found in them it is always in deep, rich, open soil. Crowns such as are not marketable are planted deeply in trenches 2 ft. apart; the plants stand 1 ft. asunder in the row. Manure is then applied on and about the crowns, which lie in a slanting position in the bottom of the trench, and they are at first not deeply buried. Early in spring, after they have started fairly into growth, the ridges between the trenches are levelled down lightly, and a crop of Radishes is sown on the surface, the latter being off in May; and by the time the Horse-radish appears in full row, the Radishes are cleared off the ground, which is hoed and afterwards kept clean. Covent Garden is, however, now chiefly supplied with Horse-radish from Holland.

The root is grated or scraped and used as a condiment, like mustard.

HYSSOP

Hyssopus officinalis, L. *Labiatæ.*

French, Hyssope. *German*, Isop. *Flemish* and *Dutch*, Hijsoop. *Danish*, Isop. *Italian*, Issopo. *Spanish*, Hisopo.

Native of Southern Europe.—Perennial.—An evergreen undershrub with oblong-lanceolate leaves. Flowers usually blue, sometimes white or pink, in whorled spikes; seeds small, brown, shining, oval three-angled, with a small white *hilum* placed near the point. Their germinating power lasts for three years. All the parts of this plant, especially the leaves, have a very aromatic odour and a rather hot and bitter taste. The Hyssop prefers rather warm, calcareous soil. It withstands ordinary winters in England and Northern France, and is generally propagated by division of the tufts, which readily take root. It may also be raised from seed, as it usually is in cold climates. The seed is sown in the open ground, in April, and the seedlings are planted out in

Hyssop ($1\frac{1}{2}$ natural size).

July, most commonly as an edging to beds of other plants. It is advisable to renew the plantation every three or four years. The leaves and the ends of the branches are used as a condiment, especially in the countries of the North.

ICE-PLANT

Mesembryanthemum crystallinum, L. *Ficoideæ.*

French, Ficoïde glaciale. *German*, Eiskraut. *Flemish* and *Dutch*, Ijsplant. *Italian*, Erba diacciola. *Spanish*, Escarchosa.

Native of Greece or the Cape of Good Hope.—Perennial, but grown in gardens as an annual.—A spreading, round-stemmed plant. Blade of the leaf widened towards the extremity, and contracted towards the stalk; flowers whitish, small, with a swollen calyx, which is covered, as are all the green parts of the plant, with small, very transparent, membranous bladders, which give the plant the appearance of being covered with frozen dew; seeds very small, black, and shining. Their germinating power lasts for five years. The culture is exceedingly easy. The seed is sown like Spinach seed, and the plants bear hot and dry weather admirably. This quality and the thickness and slightly acid flavour of the fleshy part of the leaves have caused it to be used as a fresh table vegetable for summer use in warm, dry countries. However, it is rather a plant to be grown as a curiosity in the gardens of amateurs, and it is also not without merit as an ornamental plant. The leaves are eaten minced and boiled.

Ice-plant ($\frac{1}{3}$ natural size).

LAVENDERS

There are two small undershrubs used for perfumery purposes, and sometimes grown in our gardens, belonging to the genus *Lavandula*. Both are natives of Southern Europe, and exhale a delicate, penetrating fragrance.

True Lavender (*Lavandula vera*, D.C.; *L. angustifolia*, Mœnch.; *L. spica a* L.; *Labiatæ*).—Native of Southern Europe.—Perennial.—A dwarf shrub, not exceeding from 2 to about 2½ ft. in height. Stems very numerous, forming compact tufts or clumps; leaves linear, gray; flower-stems slender, square, bare, with the exception of one pair of opposite leaves; flowers violet-blue, in a short terminal spike; seed brown, shining, oblong, with a well-marked white spot at one end, denoting its point of attachment to the bottom of the calyx. Its germinating power lasts for five years.

True Lavender.

CULTURE.—The Lavender-plant delights especially in light and rather calcareous soil. It is generally grown as an edging to beds of other plants, and is propagated by division of the clumps, or from cuttings, rarely from seed. A plantation should be remade every three or four years.

Common Lavender (*Lavandula spica*, D.C.; *L. spica β* L.; *L. latifolia*, Vill.).—More spreading in habit than the True Lavender and less shrubby, differing from it also by its larger leaves, which stand out more horizontally and are slender in comparison with their size. The flower-stems are less numerous, more vigorous, less erect, and bear more developed branchlets than the True Lavender; the flowers are also smaller and the fragrance not so delicate, for which reason the perfume distilled from this plant has only half the value of that obtained from the True variety. In Provence the two plants

Common Lavender.

grow wild on calcareous soils; the Common Lavender is found on the plains and lower edges of the hills, whilst the True Lavender is never met with at a lower elevation than 656 ft. above the sea-level. The leaves are sometimes used for seasoning, but the plant is chiefly grown for its flowers, which are used in the manufacture of perfumery.

In Surrey hundreds of acres of land are devoted to its culture, and almost as large a space may be found under Lavender in Hertfordshire. At Mitcham both cottagers and market-gardeners grow Lavender for sale, and when the fields of it are in bloom its fragrance pervades the air for miles. Lavender is increased by means of rooted slips, obtained by division of the old roots. The young plants are put out in March or April, 18 in. apart, in rows half that distance asunder, the space between the rows being the first year planted with Lettuce, Parsley, or some similar crop. When the Lavender becomes crowded, each alternate row and plant are lifted and transplanted to another field to form a new plantation. The remaining plants then stand 3 ft. apart each way, and intercropping is discontinued. During the first two or three weeks in August the flowers are harvested. The stalks are cut off with a sickle, bound up in sheaves similar to Wheat, and carried to the homestead for distillation or for other purposes. In Hertfordshire a somewhat different method is practised. The young plants are put out in November, 3 ft. apart each way, no other crop being grown between them, and the ground is well tilled and attended to. When three years old, the plants are considered at their best, and after they have been planted seven years they are dug up and the ground is replanted. A new plantation is, however, made every year or so, and thus there are always young, vigorous plants upon which dependence for a crop of flowers can be fully placed.

LEAF-BEET, or SWISS CHARD BEET

Beta vulgaris, L. *Chenopodiaceæ.*

French, Poirée. *German*, Beisskohl, Mangold, Beete. *Flemish* and *Dutch*, Snij beet, Warmoes. *Danish*, Blad bede. *Italian*, Bieta. *Spanish*, Bleda. *Portuguese*, Acelga.

Native of Southern Europe.—Biennial.—This appears to be exactly the same plant as the Beet-root, except that in its case cultivation has developed the leaves instead of the root. The botanical characteristics, especially those of the flowers and the fructification, are precisely alike in both plants. The root of the Leaf-beet is branched and not very fleshy, while the leaves are large and numerous, and, in some varieties, have the stalk and midrib developed to a remarkable extent. The seed resembles that of the Beet-root, but is usually somewhat smaller. Its germinating power lasts for six years or more.

CULTURE.—The Leaf-beet is grown in precisely the same way as the Beet-root, except that the soil need not be so deeply dug.

The seed is sown in April or May, in drills 16 to 20 in. apart. The seedlings are thinned out to a distance of 14 to 16 in. from plant to plant, and after that require no further attention beyond occasional waterings. At the close of the summer, the leaves of the Chard varieties may commence to be gathered, the best-grown leaves only being then selected. The leaves of the Common White Leaf-beet, or Spinach Beet, may be cut for use even earlier. The varieties of Leaf-beet are pretty hardy, and will continue to yield, in the open ground, until late in the season, but in order to be sure of having a supply all through the winter, it is advisable to remove a sufficient number of plants to a vegetable-house, where they are treated in the same way as Cardoons or Turnip-rooted Celery.

Uses.—The leaves of the Silver Leaf-beet, or Spinach Beet, are used, minced and boiled, like Spinach leaves. They are also often mixed with Sorrel, to lessen its acidity. In the Chard varieties, besides the green part or blade of the leaf, the stalk and midrib are also eaten. These are very broad, tender, and fleshy, and have a very agreeable and quite peculiar flavour.

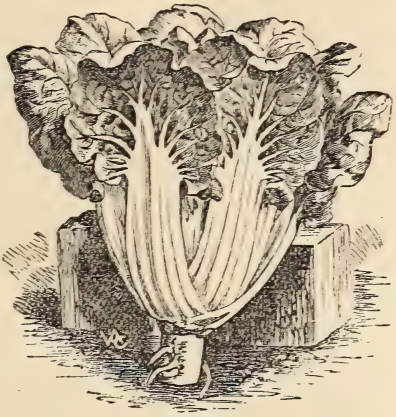
White Leaf-beet ($\frac{1}{10}$ natural size).

White Leaf-beet, or **Spinach Beet.** — The leaves of this variety are very numerous, broad, slightly undulated, and of a very light or yellow-green colour. The leaf-stalks are somewhat larger than those of the Beet-root, and are of a paler colour than the blade of the leaf. This kind is chiefly grown in the eastern districts of France, where it is highly esteemed as a fresh vegetable for table use in summer and autumn, the leaves being boiled and minced like Spinach. They are also mixed with Sorrel, as mentioned above.

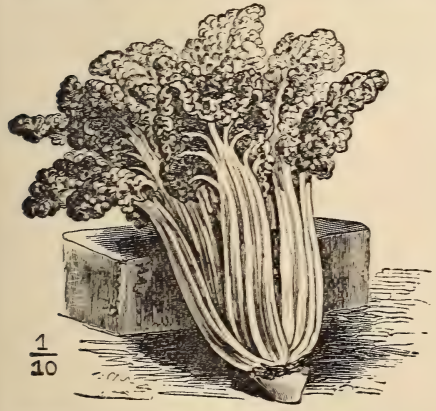
Sea-kale Beet, or **Swiss Chard.**—Leaves broad, short, and stiff, of a rather dark green colour, spreading rather than erect, with very white stalks, from about $1\frac{1}{4}$ to $1\frac{3}{4}$ in. broad, and continued into a midrib which is equally white, and narrows rather abruptly. This variety is hardy, and is chiefly grown in the countries of the North. It may be considered a drawback that the chards or midribs it produces have almost always an earthy

flavour, and in this variety these are the only parts of the plant that are used.

Silvery Sea-kale Beet, or **Silvery Swiss Chard.**—A very fine and good kind, with large broad leaves, which are very much undulated, half-erect, and remarkable for the size of their stalks and midribs, which are often 4 in. broad or more. This variety is not quite so hardy as the preceding kind, but it is much more productive, and the chards are of far better quality, being quite free from any trace of earthy flavour, and having a very delicate, slightly acid taste. Moreover, the blade of the leaf may also be used, like that of the Common Spinach Beet. In these plants a light and pale colour in the leaves appears to be accompanied by a mild flavour, while leaves of a dark green colour have always a strong acrid taste. There are few vegetables which require less care during their growth or yield a more certain crop than this variety of Chard-beet. Well-grown chards may be gathered from it in July, and the plants will continue to bear all through the summer and autumn, and even far into winter, if the precaution is taken of removing them to a vegetable-house. In France this excellent vegetable is hardly used, except in some of the departments of the north and east.



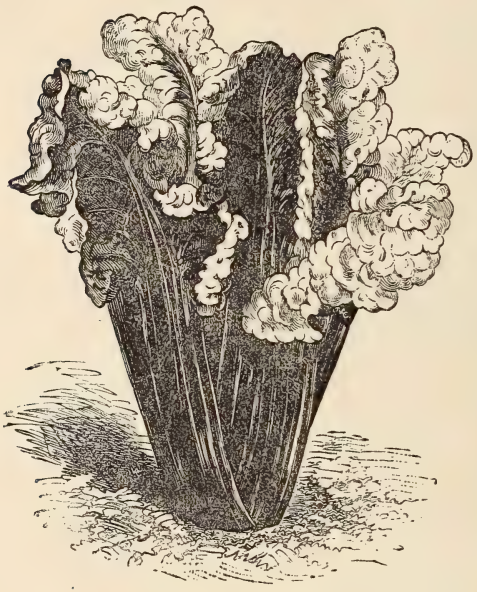
Silvery Sea-kale Beet ($\frac{1}{10}$ natural size).



White Curled Swiss Chard ($\frac{1}{10}$ natural size).

White Curled Swiss Chard.—This is almost as vigorous and productive a variety as the preceding one, with leaves equally white but crimped and curled in a remarkable manner. The chards and stalks are not so broad as those of the preceding kind, but they are of quite as good quality.

Chilian Beet, or **Red-stalked Swiss Chard.**—A very large kind, with long, stiff, almost erect leaf-stalks, 2 or 3 in. broad. Leaves rather large, undulated, almost curled, of a dark green colour with a metallic lustre, and 2 to 2½ ft. long, including the stalk. This variety is much less grown as a table vegetable than as an ornamental plant. There are two forms of it—one with bright red, and the other with deep yellow leaf-stalks.



Chilian Beet.

LEEK

Allium Porrum, L.
Liliaceæ.

French, Poireau. *German*, Lauch, Porree. *Flemish* and *Dutch*, Prei. *Danish*, Porre. *Italian*, Porro. *Spanish*, Puerro. *Portuguese*, Alho porro.

Said to be a native of Switzerland.—Biennial.—Notwithstanding the different names given by botanists to the two plants, the Leek and the Great-headed Garlic are probably identical, the only difference between them being that, in the case of the latter, cultivation has developed the production of cloves, while with the former the object has been to develop the leaves in such a manner that they may both be numerous and cover one another at the base for the greatest distance possible. In the Leek, as in the Onion, during the first year the stem is reduced to a simple plate or very flat cone, from the under-side of which the roots issue, while the leaves spring from the upper part, sheathing one another at the base, and then forming a long blade, which is usually folded longitudinally and narrowed to a point. These leaves, of greater or less length and breadth, according to the variety, are arranged in two opposite rows, so that they spread one above another on both sides evenly from the central axis, in a kind of fan-shape. The flower-stem, which does not appear before the second year, rises from the centre of the leaves, dividing the fan into two equal parts. It is smooth, solid, of nearly the same thickness throughout its entire length, and not swollen like that of the Onion. The flowers, which are white, pink, or lilac, form a large, almost spherical,

simple cluster on the top of the stem, and are succeeded by three-valved, roundish three-angled seed-vessels, which are filled with black, flat, wrinkled seeds, very like Onion seeds. Their germinating power usually lasts for three years.

CULTURE.—The Leek is a true biennial; that is, it requires nearly a whole year to grow before it prepares to flower and ripen its seeds, which it does in the course of the following year. The seed is usually sown in March in a seed-bed. In May or early in June, when the plants (which should have been previously thinned if sown too thick, and watered when necessary) are about as thick as a good-sized goose-quill, they are planted out in good, moist, rich soil, which should have been prepared beforehand by being manured with well-rotted stable manure, if possible. It is best to plant in moist, cloudy weather, or else to moisten the soil well a few days before. The plants are generally set in drills or rows, 16 to 20 in. apart, and with a distance of 10 to 12 in. from plant to plant in the drills. They should not be planted deeper than they were growing in the seed-bed, but soil should be laid on to cover the stalks, so as to blanch them for as great a portion of their length as possible. Another mode of planting is to make small circular holes in the rows, about 4 in. wide and the same in depth, in each of which a young plant is set, the holes being afterwards gradually filled up by rain and watering washing into them the soil which was taken out in making them and left beside them. Leeks planted out in May will commence to be fit for use about September, or they may be had earlier by sowing in February and planting out in the latter end of April. Some market-gardeners about Paris are able to send them to market in July, by sowing in a hot-bed in December. If the supply is required to be continued through the winter or until spring, when full-grown plants are preparing to run to seed, late sowings should be made in the latter end of April or May, and the plants should not be planted out before August.

Large quantities of Leeks are grown in the valley of the Thames, where the soil is moist. The first sowing is made towards the end of January in a frame set on a gentle hot-bed, on which has been placed a few inches of light, rich soil. The seed is sown rather thickly and afterwards slightly covered with fine soil. The sashes are then kept close until the young plants appear, when abundance of air is admitted both night and day on all favourable opportunities. If severe weather sets in, the sashes are covered with litter or mats. On fine days plenty of water is supplied to the plants, and the soil is kept frequently stirred. If the seedlings are too thick, they are thinned out to 1 in. or so apart, and those that remain are gradually hardened off until towards the end of March, when they are carefully lifted and planted out-of-doors in rows about 1 ft. apart, the plants in the row being about

6 in. asunder. Between the rows Lettuces are planted, and these, being of quick growth, are removed long before they can in any way injure the Leeks. The next sowing, which takes place about the end of February, is made out-of-doors in beds, and when large enough the plants are put out, in a similar manner to the former sowing, in heavily manured, deeply dug soil. Another sowing is made six or eight weeks later, and the last one generally about the first week in May. In all cases drills are drawn to a depth of 4 or 5 in., in which the plants are put. These in some measure protect the plants in the early stages of their growth, and serve as receptacles for water. The frequent hoeing of the ground, which is considered a very important matter, fills in the drills and blanches the necks of the Leeks—one of the main things to be considered in their culture. During dry weather abundance of water is applied, and some growers, after taking a crop of Lettuce from between the rows, heavily mulch the ground with manure. The produce from the first sowing is ready for market by the beginning of August, when it is quickly removed and the vacant ground cropped with other vegetables. The latest sowing keeps up a constant supply of Leeks far into the winter, when they are most in request. The fine qualities of this vegetable are much better known to the Welsh, Scotch, and French than to the English or Irish.

A good mode of growing fine Leeks is to form trenches for them in the same way as for Celery, though not so wide—9 or 12 in. being quite sufficient. Fill each trench at the bottom with about 6 in. of well-rotted, rich, light manure; surface this with a few inches of soil, and leave the top from 6 to 12 in. deep. Plant the Leeks out of the seed drills or beds into the trench in dull, showery weather, taking care to preserve all their roots. This will be found a most convenient method to allow of the easy application of water and manure; see that the plants are kept clear of weeds. As they advance in growth fill in the earth a little at a time; this will refresh and stimulate the plants. By the end of the season the trench will be level with the surface or probably converted into a slight ridge on either side of the Leeks, which will be from 12 to 18 in. long, thoroughly blanched, and of the finest quality. Leeks are sometimes planted with a dibble in newly dug, highly manured ground in the same way as Cauliflowers or Cabbage-plants, and simply left to shift for themselves.

Another method of planting is that adopted for setting Potatoes with spade and line. The ground is dug and manured in the autumn, and again dug early in April. When 1 ft. or more is dug, set the line against the work and cut it down straight with the spade; then plant the Leeks carefully against the straight cut along the face of the dug ground, spreading out the roots and covering them with some of the fine soil already cut down; dig another foot of ground—taking care not to bury the Leeks too deeply—and proceed to plant another row, and so on until all are completed; by this mode the plants will have a fresh, soft, untrodden root-run in which to start, and often thrive remarkably well. The subsequent management consists in merely keeping the surface clear of weeds, and in copiously watering should the weather prove dry. This style of planting is termed "digging in."

Uses.—The blanched lower part of the leaves, improperly called the stem of the plant, is extensively used in culinary preparations. In the south of England and in Ireland, the great value of this vegetable is little known except to good cooks; it is not always to be had in the best condition in these parts.

Long Paris Winter Leek.—This kind is very distinct from all others. Its leaves are consolidated for a considerable portion of their length, and, in the free part, are longer and narrower than those of any other variety; they are also of a paler and grayer green. The lower part of the leaves, where they overlap one

Long Paris Winter Leek ($\frac{1}{6}$ natural size).

another, and which is generally termed the stalk, measures, in well-grown plants, about 12 in. long and about 1 in. in diameter. This variety withstands the winter well, and is particularly suitable for planting out late in autumn. It is the only kind which produces those fine, very long, slender Leeks, which are seen in long bundles in the Central Market at Paris; at the same time, it is true that the market-gardeners help Nature a little by earthing up the plants while they are growing.

Long Mezières Leek.—An excellent variety; the stem is thick, 8 to 10 in. long, or longer, and very white; the leaves green, narrow, and erect. Lately it has been largely grown around Paris.

It is a true winter Leek, and from September onwards large quantities of it are sent to the Paris market.

Long Mezières Leek.

Bulgarian Leek.—A very distinct kind, with a thick and high stem. It is a quick grower, and therefore a good summer Leek. The leaves are stiff, pointed, erect, and uniform dark green. Unfortunately it easily suffers from cold.

Broad, or London, Flag Leek.—This kind should rather be called the Long Flag Leek, as it has a very long as well as broad stem. It is often, in fact, 10 in. long, with a diameter of nearly 2 in. The leaves are large, pliant, often drooping backwards, rather variable in colour, but commonly of a rather dark green. It is a very fine, good, rather early, and very productive variety, but not very hardy. In the climate of Paris it can only be used

Broad, or London, Flag Leek.

for an autumn crop, as it is unable to bear any winter that is not exceptionally mild.

Large Yellow Poitou Leek.—This variety, as its name indicates, originated in the west of France, and the climate of its birthplace seems to have influenced its constitution to the extent of rendering it rather too delicate to endure a Paris winter always without injury. It is, probably, a local variety of the Broad Southern Leek, but it differs from it very plainly in several characteristics. The stem is shorter, but quite as thick, at least, being often 2 in. or more in diameter, and from 8 to 10 in. long. The leaves are larger and more fan-like in their arrangement; they are also longer and softer, and often have nearly one-half pendent

so as sometimes to reach the ground. The colour, too, is very distinct, being a light, almost yellow green, totally different from the glaucous or gray tint of the leaves of almost all other kinds of Leek. As before observed, this is not a very hardy variety, but it is early and swells rapidly, which renders it very suitable for an autumn crop.

Large Rouen Leek.—Stem short, very thick, seldom exceeding 6 to 8 in. in length, with a diameter of 2 in. or more, and growing

Large Yellow Poitou Leek ($\frac{1}{6}$ natural size).

almost entirely covered by the soil; leaves commencing to separate, fan shape, almost at the level of the ground, numerous, closely overlapping one another, folded into a spout shape, stiff, of moderate length, and usually pendent at the extremity. The blade of the leaf is broad and dark green, with a gray or glaucous tinge. This is a very fine and productive variety, equally good for a winter as for an autum crop, swelling less rapidly than the preceding kind, but, on the other hand, very slow in running to seed, and therefore yielding a more prolonged supply for table use.

Giant Carentan Leek.—The characteristics of this variety are nearly the same as those of the preceding one, of which it is, very probably, only an improved form, but a very distinct one, on account of its much greater size, and the very dark colour of its leaves. The length of the stem, in this kind, seldom exceeds 6 to 8 in., but it is often 3 in. or more in diameter in well-grown plants, and we have not infrequently seen it of still larger dimensions. Like the Rouen Leek, it is very hardy, and is not affected by Parisian winters.

Flanders Winter Leek.—A very hardy variety, proof against

Large Rouen Leek ($\frac{1}{8}$ natural size).

drought as well as the severest frosts. The stem is short, not very thick; the leaves gray-green, narrow, folded over, and pendent. Its defect is producing suckers.

Perpetual Leek.—More curious than useful, producing an abundance of suckers which form large tufts of numerous thin shoots, not exceeding the thickness of the finger. Its merit is that it is very slow to run to seed, and thus such usefulness as it may have lasts for a longer time.

In addition to the foregoing, we may mention the following varieties:—

Brabant Short Broad Leek.—This is indeed a very short and very hardy kind, but of small size, the diameter of the stem

seldom exceeding about 1 in. In its general appearance as to the colour and arrangement of the leaves, it is somewhat like the Rouen Leek, but much smaller.

The Lion Leek.—This is often grown in England. It is rather variable; we have known it to resemble the Rouen Leek, with a thicker bulb; more often its appearance is that of a broad flag Leek, with a long white stem and light green leaves.

Musselburgh, or **Scotch Flag, Leek.**—An improved form of the Common Long Winter Leek (raised near Edinburgh),

Perpetual Leek.

with a longer and thicker stem and broad leaves. It comes very near the Giant Carentan Leek. The *Ayton Castle New Giant* (Henry's Prize Giant) Leek is also a very superior large variety.

Small Mountain Leek.—A half-wild kind, grown in the southern and central districts of France. It has narrow leaves, which are folded longitudinally and of a dark glaucous green colour, and a very short and small stem, which frequently sends up shoots or suckers. Its only merit is that it is a very hardy kind.

LENTILS

Ervum Lens, L.; *Lens esculenta*, Mœnch. *Leguminosæ.*

French, Lentille. *German*, Linse. *Flemish* and *Dutch*, Linze. *Danish*, Lindse. *Italian*, Lente. *Spanish*, Lenteja. *Portuguese*, Lentilha.

Native of Southern Europe.—Annual.—A small and very branching plant, forming a tuft 14 to 16 in. high. Stems slender and angular; leaves winged, composed of a great number of small oval leaflets, light green in colour, and terminating in a simple tendril; flower axillary, small, white, produced in pairs, and succeeded by very flat pods, each of which usually contains two very flat seeds, which are rounded in outline and convex on both sides. The germinating power of these seeds lasts for four years. The seed is generally sown in drills or lines in March. The plant usually prefers light soil; at least, it seeds most plentifully when grown in soil of that description. It requires no attention until the seeds are gathered in August or September. These keep better in the pods than they do after they are threshed, so the crop is only threshed out as a supply is required. The seeds are eaten like Haricot Beans, and of late years their use has been very much more frequent in England. It is excellent for soups and stews, and a capital addition to our food supplies.

Large Yellow Lentil ($\frac{1}{10}$ natural size; detached branch, natural size).

Large Yellow Lentil.—Plant of rather small size, but very branching, and of rather pale green colour; seed very broad, flat, and pale. This is the most commonly cultivated variety, and is grown extensively in the eastern and central districts of France, and also in Germany.

Like the Pea, the Lentil is often attacked by a small beetle or weevil, the grubs of which feed on the seed, in which they remain until they change into the form of a perfect insect; and it is probably owing to the ravages of these insects that the cultivation of Lentils has greatly fallen off in the northern districts of France.

The two commercial names of *Lorraine* and *Gallardon* Lentils merely indicate the districts from which the seeds are supplied, but both refer to the same Large Yellow Lentil, just described.

Puy Green Lentil.—A very distinct kind, with small seed, which is only about ¼ in. in diameter, but very thick, and pale green, spotted and marbled with dark green. This variety is almost exclusively grown in the departments of Haute-Loire and Cantal, where it is highly esteemed both for table use and as green fodder for cattle.

Small Winter Lentil.—This variety is chiefly grown in the northern and eastern districts of France, and is sown in autumn, either among corn or, more commonly, by itself. It is seldom used as fodder for cattle, as the seed is highly esteemed for table use, many persons preferring it to that of the Large Yellow kind. It is small in size, thick, and of a rather deep reddish colour, which distinguishes it at first sight.

Small March Lentil.—The seed of this kind resembles that of the Large Yellow Lentil in colour and shape, but is only about half the size. It is sown in spring, like the Large Yellow variety. The name Small Queen Lentil (*Lentille à la Reine*) is sometimes given to this kind, and also to the preceding one. Both varieties are very highly esteemed for table use, on account of their delicate flavour and the remarkable thinness of the skin of the seed.

Auvergne Lentil, or **One-flowered Tare** (*Ervum monanthos*, L. *Leguminosæ. Lentille d'Auvergne*).—Native of Southern Europe.—Annual.—A small plant, with slender stems, which require support. Leaves compound, formed of numerous very small, oval leaflets; flowers axillary, solitary, whitish, and long-stalked, succeeded by broad flat pods, each containing two or three seeds. The plant will grow about 2 or 2½ ft. high, if the stems have something to support them; otherwise they sprawl on the ground. Seed irregularly rounded, tolerably convex, intermediate in shape between the seed of a Lentil and that of a Vetch, of a gray-brown colour, streaked or marbled with black, floury, and rather agreeable in flavour. Its germinating power lasts for three years. The seed may be sown in autumn or in spring. The plant is much more frequently grown to furnish green fodder than for its seeds, and is mostly sown along with Rye or Oats, which furnish a support for its climbing stems. The seed is sometimes eaten boiled, like Lentils.

LETTUCE

Lactuca sativa, L. *Compositæ.*

French, Laitue cultivée. *German*, Lattich. *Flemish* and *Dutch*, Latouw. *Danish*, Salat. *Italian*, Lattuga. *Spanish*, Lechuga. *Portuguese*, Alface.

Native of India or Central Asia.—Annual.—The origin of the cultivated Lettuce is not known for certain, any more than the time when it was first introduced into Europe; neither can we be sure that the ancients knew anything about it. However, the great

number of varieties of it which now exist in cultivation, and the very permanent manner in which some of these varieties appear to be established, afford good grounds for the opinion that the plant has been cultivated for a very long time.

The different varieties present such a diversity in the shape and colour of the leaves, that it is difficult to give a general description of the plant which will be applicable to all its forms. We may suppose, however, and especially from the fact that some Chinese varieties do not form a head, that in its original or natural state the Lettuce forms a rosette of broad and long leaves, somewhat spoon-shaped, and more or less undulated and toothed at the edges. From the centre of the rosette springs a nearly cylindrical stem, which narrows very rapidly and becomes branching at about one-third of its height, furnished with clasping leaves, which are auricled, and become narrower as they approach the top of the stem. The flower-heads are numerous, longer than broad, with pale yellow florets. Seed small, of a long almond shape, pointed at one end, marked with pretty deep longitudinal furrows, and usually either white or black, but sometimes brown or reddish yellow. Its germinating power lasts for five years.

Good authorities appear inclined to refer all the cultivated varieties of Lettuce to two distinct botanical types, from one of which have been derived the Cabbage Lettuces, properly so called, which have rounded or flattened heads, while the other has been the parent of the Cos Lettuces, in which the head is tall and elongated in shape. We find it difficult to assent to this view of a twofold origin ; in the first place, because the two kinds pass into each other through almost imperceptible gradations ; and secondly, because as soon as they run to seed they present no difference between each other, which is conclusive proof of the identity of their origin.

We have described the Cultivated Lettuce as an annual plant, because the growth of the flower-stem uninterruptedly succeeds that of the radical leaves which form the rosette, and because the rosette itself is completely formed in a few weeks, or, at most, in a few months. Nevertheless, several varieties are so hardy, that they may be sown in autumn, and, after withstanding the winter, will not run to seed until spring. All the varieties are by no means amenable to this treatment. On the other hand, there is a great deal of inequality in the degrees of readiness with which the different varieties run to seed under the influence of warm summer weather. These differences of constitution and suitability for various seasons have led to the division of the varieties of Lettuces into three classes, from a cultural point of view, viz. :

1. WINTER LETTUCES, which, with a little care, will withstand ordinary winters in France, the south of England, etc.

2. SPRING LETTUCES, which head rapidly when sown immediately after winter.

3. SUMMER LETTUCES, which are usually larger than the spring kinds, and do not run to seed too fast in hot weather.

Although this division is not very precise, we shall adopt it here, as affording a means of indicating the mode of culture suitable for each variety, without falling into endless repetitions. We shall accordingly first point out the treatment suitable for winter Lettuces in general, after which we shall enumerate and describe the varieties which come under that head, doing afterwards the same in the case of the spring and summer varieties.

CABBAGE LETTUCE

Lactuca capitata, D.C.

French, Laitues pommées. *German*, Kopfsalat. *Flemish* and *Dutch*, Kropsalad. *Italian*, Lattuga a cappucio. *Spanish*, Lechuga acogollada. *Portuguese*, Alface repolhada.

I. WINTER VARIETIES

These are sown from the middle of August to the middle of September. About the end of October, when the plants form a rosette 2 to 3 in. in diameter and have each five or six pretty strong leaves, they are planted out permanently in as warm and favourably situated a position as possible—preferably at the bottom of a south wall or in a thoroughly well-drained bed. In very frosty weather the plants should be protected with straw mats, which are to be taken off when the weather becomes mild. Winter Lettuces are not injured by snow—so far from it, that we sometimes see varieties which are not very hardy pass through the winter in safety when well covered by it. In February the growth of the winter Lettuces becomes more active, and the heads begin to form at the end of April or early in May, the plants continuing to yield for six weeks to two months, until the spring Lettuces come in.

Madeira Large Winter Cabbage Lettuce ($\frac{1}{8}$ natural size).

Madeira Large Winter Cabbage Lettuce (*White-seeded*).—This variety, when young, has the leaves very much rounded and entire in outline, the blade being slightly twisted and faintly crimped in the lower part, of a rather dark green, with brown spots interspersed. The colour becomes much lighter as the plant increases in

size. The full-grown plant is of medium size, inclined to be broad, and of low growth, the leaves resting on the ground and forming a rosette somewhat irregular in outline, and 8 to 10 in. in diameter; the outer leaves are not crimped, and are entire at the margin, but are broadly folded and twisted, and of a clear, light green colour marked with a few brown spots. The head is rounded, fairly thick, and pale green, tinged with red on the top. The leaves immediately surrounding it are crimped, rumpled, and tinged with red on the edges. This is considered one of the hardiest of all Lettuces, and is generally only used for winter culture in the open ground. If sown in spring, it runs to seed very quickly.

White Madeira Lettuce (*Black-seeded*).—The young plant differs from the white-seeded Madeira Lettuce in the absence of the brown blotches on the outer leaves. It is a vigorous plant, producing large, well-filled round heads, somewhat flattened, with tones of silver, which are also seen on the lower side of the leaves. The inner leaves are rounded, with plain, unnotched margins. The outer leaves are large, not pointed, with ample folds and only slightly crimped. The plant is a whitish green colour throughout, without any coloured spots. It is more compact than the Large White Winter Lettuce, and is also a little earlier to head. It is proof against the Paris winter.

Hammersmith, or **Hardy Green Winter, Cabbage Lettuce** (*Laitue Morine*) (*White-seeded*).—The leaves of the young plant are nearly round, shortly spathulate, finely toothed near the base, entire on the rest of the margin, generally folded in the direction of the midrib, frequently hollowed out like a spoon, and of a light, pale, or yellow-green colour. The full-grown plant is rather thickset, not exceeding 7 or 8 in. in diameter, and somewhat irregular in outline. Outer leaves green, not very large, longer than broad, twisted considerably without being exactly folded, and partially crimped near the midrib, but not at the edges; head rather close and tall, fairly solid and compact, and surrounded by leaves which are generally folded in two, almost like a twisted paper bag, very much crimped and a little paler in colour than the outer leaves. This variety is only used for winter culture. It is hardy and of good quality, and can be planted pretty close, which makes up in some degree for the small size of the individual plants.

Hammersmith Cabbage Lettuce.

Large White Winter Cabbage Lettuce (*White-seeded*).—The leaves of the young plant are spathulate, slightly puckered or folded, faintly toothed near the base, spreading very much, and of a very light green colour. The full-grown plant is stout, broad, and tall, 10 to 12 in. in diameter, and very irregular in outline. The outer leaves are green, entire at the edges, but very much twisted and folded into broad undulations; head round, thick, light green in colour, composed of and surrounded by leaves which are very much crimped, folded, and twisted, the margins, however, being entire or nearly so. This is very suitable for winter culture, being hardy, early, and very productive. It may also be sown in spring, and when raised at that time it keeps the head very long for a winter Lettuce.

Large White Winter Cabbage Lettuce ($\frac{1}{8}$ natural size).

Trémont Winter Cabbage Lettuce (*White-seeded*).—Very hardy, and as productive as the Large White Winter Cabbage Lettuce, and a better header than the Madeira Lettuce. A large plant, with broad, rounded leaves of light green, forming good-sized heads, with enough outer leaves to protect it against the cold. Owing to its hardiness, size, and good quality it is one of the best for sowing in the latter half of August for use at the end of the winter.

Trémont Winter Cabbage Lettuce.

Brown Winter Cabbage Lettuce (*White-seeded*). — The young plant of this variety is very considerably deeper in colour than the young plant of the Red Winter Lettuce. Its leaves are shortly oblong, and angular in outline rather than really toothed; the blade, which is sometimes slightly undulated, is hollowed out like a spoon, and blotched and plentifully tinged with brown. The full-grown plant is compact and rather thick-set. Leaves all more or less spoon-shaped, the outer ones

almost smooth; head rounded, rather solid, composed of and surrounded by coarsely crimped, rather ruffled leaves of a very light green colour. The whole plant seldom exceeds 7 or 8 in. in diameter. This is a very hardy variety, excellent in quality, and taking up but little space when growing; but it is only right to say that it runs to seed rather faster than the following kind.

Brown Winter Cabbage Lettuce (⅛ natural size).

Hardy Red Winter Cabbage Lettuce (*White-seeded*).—The leaves of the young plant are oblong, slightly narrowed at the extremity, and having very much the appearance of Cos Lettuce leaves; edge nearly entire, faintly undulated, only toothed on the lower third part; in colour light green, slightly tinged and blotched with light brown. A vigorous plant, very hardy and quite distinct, with a tall, almost conical head, composed of leaves twisted like Cabbage leaves. The head is large, solid, and lasts a long time; the leaves composing it are light green, tinged with brown along the edges. The outer leaves, which have felt the severity of the winter, are almost as dark as those of the Red Winter Cos Lettuce, particularly so towards the point. It is not very spreading, and may be planted fairly close.

Roquette Cabbage Lettuce (*White-seeded*). — Under this name, a variety of winter Lettuce is grown which is remarkable for its dwarf size and the firmness of its head. The plant is very small and compact, with pale green leaves deeply tinged with bronzy red wherever it is exposed to the light, and in shape and general appearance it somewhat resembles a miniature Batavian Lettuce. When fully grown, it does not exceed 4 in. in diameter, and its small size makes it very suitable for growing in frames or under bell-glasses.

Hardy Red Winter Cabbage Lettuce.

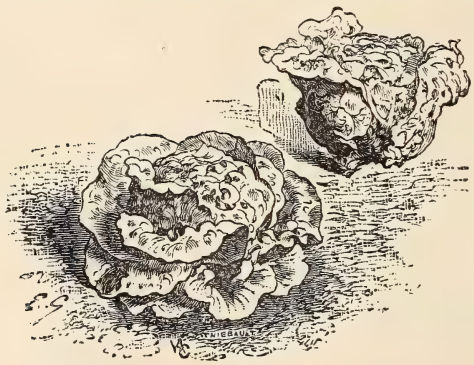
The Silesian Winter Lettuce is a rather large and pretty hardy

kind, somewhat resembling the White Batavian Lettuce. The leaves are large and twisted and pale green tinged with red. Head rather large, but flabby. This variety does not answer for summer culture.

II. Spring Varieties

These are sown in March, on a spent hot-bed, or simply on compost (rotted spent manure), at the foot of a south wall. The seedlings are planted out in April, and the plants may commence to be cut for use about the end of May or early in June. These may also (as is usually the practice with market-gardeners) be sown, where the crop is to stand, about the end of February, among other vegetables growing in pure compost, or in soil covered with a thick layer of compost. In this case the small varieties should be grown, as being less likely to interfere with the other vegetables among which they are sown.

The spring varieties, especially the Crisped and Tennis-ball kinds (*Laitue Crêpe* and *L. Gotte*), are those which are used for forcing. These two kinds, and especially the Black-seeded Crisped (*L. Crêpe à Graine Noire*) are sown in October in hot-beds, and are entirely grown either in frames or under bell-glasses. The last-named kind (the "*petite noire*" of the Paris market-gardeners) has the peculiarity of being able to grow almost entirely without air, so that it can be quickly raised with the help of a little artificial heat. The Tennis-ball is a more productive kind, but requires fresh air to be admitted from time to time. The sowings made in frames during winter may be finished off by a sowing made on the hot-beds with the frames and lights removed. The plants thus raised, and not transplanted, will come in some days earlier than the first of those planted out in the open air.



Milly Forcing Cabbage Lettuce.

Milly Forcing Lettuce (*White-seeded*).—Does as well under glass in winter as in open culture during summer. The head is large, solid, and light green, much tinged with russet on the top and sometimes on the sides. It resembles closely the old Red-edged Victoria Lettuce, but is larger and is quicker to head. Sown in the autumn, and planted out under

hand-bells or in frames, it is ready for use about the same time as the early spring varieties, but is much larger in size.

The variety known in America by the name of *Crisp-as-Ice Lettuce* resembles it very closely, although rather lighter in colour.

Black-seeded Crisped Cabbage Lettuce (*Laitue Crêpe à Graine Noire*).—Young plant rather compact, with leaves nearly round in outline, but angularly indented. The young leaves begin very soon to fold themselves like a twisted paper bag. The full-grown plant is small, low, resting on the ground, of a very pale green, somewhat irregular in outline, and 6 or 7 in. in diameter. Outer leaves broad but short, slightly undulated at the edges, twisted, and very sparingly crimped; head round, slightly flattened, formed of leaves which are paler in colour, but much less crimped and curled than those of the White-seeded Tennis-ball Lettuce; it is firm and forms quickly, but does not last long. This variety is chiefly grown for an early crop under bell-glasses and in frames, in winter and early spring.

Black-seeded Crisped Cabbage Lettuce (⅛ natural size).

White-Seeded Crisped, or Early Paris Cutting, Cabbage Lettuce.—The leaves of the young plant are broad and short, with an angular or bluntly toothed outline, and light green in colour, which changes almost to a butter-yellow in the parts exposed to the sun. The full-grown plant is of medium size, about 8 in. in diameter, with leaves of a light green colour, very much curled and undulated. Outer leaves very much folded and waved at the edges, broadly and bluntly toothed, and coarsely crimped here and there; head of medium size, tall, formed of leaves which are paler and much more crimped than the outer ones, and also more curled than those of the Black-seeded Tennis-ball Lettuce. It is generally soft, although very full, forms quickly, but is soon put out of shape by the quick growth of the flower-stem. This variety is well adapted for spring culture, especially in the open air. When sown in autumn, it bears the winter pretty well.

White-seeded Tennis-ball Cabbage Lettuce (⅛ natural size).

White-seeded Tennis-ball, or Boston Market, Cabbage Lettuce (*Laitue gotte gr. bl.*).—The young plant of this variety has leaves of a very light green colour (which become yellow where it is exposed to the sun), and of an outline which is angular rather than decidedly toothed, except at the base. The young leaves begin very soon to become crimped and rumpled, and plants which have

not made a dozen leaves will sometimes exhibit the rudiments of a head. The full-grown plant is small and thick-set, about 6 in. in diameter, and roundish in its outlines. Outer leaves rounded and partially crimped, with edges almost entire, but very much folded and sinuated; head small, but rather compact, of a pale, almost yellow, green, and formed of leaves which are much more crimped and sinuated than the outer ones. Though of small size, it is very productive. It grows rapidly, keeps the head well, and may be planted very close. It is especially suitable for a spring crop—that is, to be sown immediately after winter, and cut for use before summer. Sown in autumn it bears the winter well, but for this purpose we have other varieties which are hardier and much more productive. For summer culture also, although this kind is not particularly liable to run to seed, the true summer Lettuces are to be preferred.

There is another form of White-seeded Tennis-ball named *Laitue Gotte Dorée*, or *L. Gotte Jaune d'Or* (the Golden Tennis-ball), which is very like the variety next described, but runs to seed sooner.

Early White Spring, or **Paris Market Forcing, Cabbage Lettuce** (*Laitue gotte gr. n.*) (*Black-seeded*).—The young plant differs very little from the preceding variety, except that its leaves are more crimped and folded. The full-grown plant is smaller than the preceding, and has the head flattened and never very firm. In all other respects the two are much alike, and are grown in the same way.

French Tom Thumb Lettuce (*Laitue Gotte Lente à Monter*) (*Black-seeded*).—The leaves of the young plant are a rather dark green, rounded, entire, hollowed like a spoon, and with one-half almost always folded back. The central leaves begin to become crimped very early. The full-grown plant is low and rather thick-set, irregular in outline, and 6 or 7 in. in diameter. Outer leaves falling back on the ground, rather short and stiff, and dark green in colour, generally folded along the midrib, with one half flat and the other turned up, and pretty well crimped; central leaves also more or less folded, with numerous and prominent crimpings, forming a head of medium size, very firm and compact, green on the outside, very tender, and keeping for a long time, even in summer. This variety is rather small, but comparatively very productive and early, and keeps the head well; it is one of the best for spring and summer culture. The head is tender and of excellent quality.

French Tom Thumb Lettuce.

Wheeler's Tom Thumb Lettuce (*Black-seeded*).—Light green, with almost round leaves, slightly crimped and finely toothed near the base. It resembles the Algiers Lettuce, and still more closely the Early White Spring Lettuce, but it has smaller outer leaves. Its small size enables it to be planted very close, and it is well adapted for frames.

Red-edged Victoria Cabbage Lettuce (*White-seeded*).—Leaves of young plant rounded, folded in the lower part, and flat or slightly hollowed out like a spoon in the rest of the blade, light green in colour, faintly tinged with yellow on the parts exposed to the sun. Full-grown plant compact, 8 or 9 in. in diameter ; outer leaves rounded, nearly flat, resting on the ground ; those surrounding the head slightly crimped, and pale, yellowish green, tinged with red at the edges ; head very solid, and compact, looking as if

Wheeler's Tom Thumb Lettuce.

Red-edged Victoria Cabbage Lettuce.

twisted, and of a yellowish light green and tinged with red on the top. This is the most productive of all the spring Lettuces. It is also slower in forming the head than any other kind, and may be regarded as the connecting-link between the spring and the summer varieties. The head is very tender and, at the same time, very firm. It is one of the best kinds either for the private kitchen-garden or for market-gardening purposes, and a very good variety for forcing.

The following varieties are only occasionally met with in cultivation :—

Laitue Bigotte.—Head medium-sized or large, round, very light-coloured green, deeply tinged with red. A fine, early, and productive kind.

Laitue Cocasse à Graine Noire.—Leaves of a light glaucous green, crimped ; those around the head folded back ; head very firm and solid. The white-seeded form of this kind exhibits hardly any difference from it.

Coquille Cabbage Lettuce.—A small variety, with a tall head. Leaves stiff, crimped, folded in two, and turned back at the ends. The appearance of the plant is almost intermediate between that of a Cabbage and a Cos Lettuce. It is a pretty early kind, but not very productive.

Green Tennis-ball Cabbage Lettuce.—Leaves of the young plant broad, very entire, rounded, not toothed, except merely at the base, and a vivid green. The head is slow in forming. Full-grown plant small, 7 or 8 in. in diameter, with an erect head; leaves narrow, and very dark green, by which it is distinguished from all other Lettuces; the outer ones almost flat, very like those of the Lettuce-leaved Spinach, the central ones tolerably crimped, and forming a head which is at least as tall as it is broad, and is never very solid; seed black. This is an old variety, without any great merit except its hardiness.

Green Crisped Cabbage Lettuce.—Leaves large, undulated, curled at the edges, and light green; head medium-sized, somewhat flattened, and tinged with brown on the top. A hardy kind, but not very tender or well flavoured.

Laitue Dauphine.—Leaves large, marked with a few red spots; head tall, not very solid, light green, slightly tinged with red on the top. In appearance this variety somewhat resembles the Large or White Summer Cabbage Lettuce, except that it is of a darker green. Seed black.

George Early White Spring Cabbage Lettuce.—Leaves large, roundish, and not much undulated; head round, light coloured, of medium size, composed of broadly crimped leaves. This variety is not so good as the Crisped or Tennis-ball kinds, and is most commonly grown as a cutting Lettuce. Seed white.

George Lettuce.

Laitue Grasse de Bourges.—A rather compact kind, nearly the whole of the plant forming the head, with short spoon-shaped leaves. Head round and close. This is an early and tender variety, but is liable to rot very easily.

Mousseronne Cabbage Lettuce. — Leaves medium-sized, curled and toothed, slightly crimped, and light green edged with brown; head small and loose, russet tinged; seed white. This variety is very early, but heads badly. It may also be grown as a cutting Lettuce, like the George Lettuce.

Some foreign varieties of spring Lettuces may be here mentioned, of which the best and most commonly grown are the following:—

Early Cabbage, or **Dutch Butter-head, Lettuce.**—A small and very distinct variety, with crimped leaves, blotched with pale brown. Head firm and compact, tinged with red, and scarcely as large as that of the Tom Thumb Lettuce. Seed white.

Earliest Dwarf Green Lettuce.—A pretty little green variety, very thick-set and distinct, although evidently not far removed from the Tom Thumb Lettuce. Seed black.

Earliest Dwarf Green Lettuce ($\frac{1}{6}$ natural size).

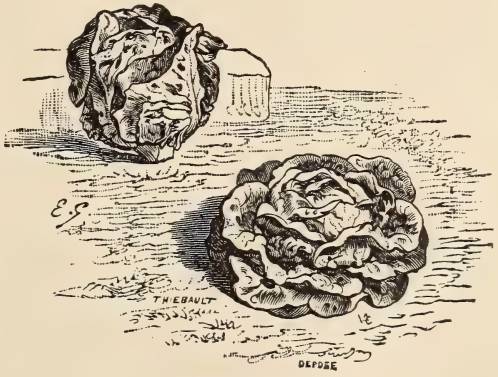
Laitue Empereur à Forcer.—This small variety, which is very early, very much resembles the White-seeded Tennis-ball Lettuce, but is somewhat lighter in colour, and runs to seed sooner.

Hubbard's Forcing Lettuce. — A large, light-coloured American kind, something like the White-seeded Tennis-ball and the White Summer Cabbage Lettuce. It is forced under glass in spring.

III. Summer Varieties

The culture of these is of the most simple kind. The seed is sown in a seed-bed from March to July, and the seedlings are usually pricked out once before they are planted out permanently, which is done when they have made five or six good leaves. After this, they require no further attention except frequent and plentiful waterings. A good mulching of manure spread amongst them will keep the soil cool and moist and stimulate the growth of the plants.

Algiers Lettuce (*Black-seeded*).—In general appearance this variety resembles the Red-edged Victoria Lettuce, but is smaller and of a darker green. A very nice little Lettuce, suitable both for the market and the kitchen garden. In the climate of Paris it is a spring and summer Lettuce, but in climates where there are no hard frosts it may be grown for a winter crop. It can bear close planting, like the Tom Thumb Lettuce.



Algiers Lettuce.

White-seeded All-the-Year-Round Lettuce (*Laitue blonde d'été*).—Leaves of young plant light green, short, entire, rounded, very faintly toothed at the base, and slightly undulating. Full-grown plant with a round, compact, very solid head, of a very pale green; outer leaves short,

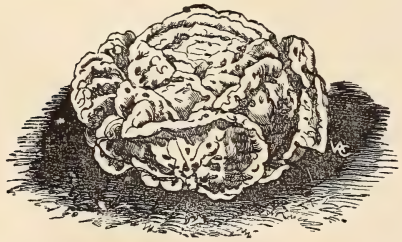
rounded, very entire at the edges, but finely crimped and slightly undulated; the plant is 6 to 8 in. in diameter. An excellent variety, one of the most commonly grown, as shown by the great number of names which it bears. It is hardy and very productive, being, as the gardeners say, "all head." It makes a fine, tender, crisp salad, and grows well in almost any soil, so that it is found in cultivation almost all over the world.

White-seeded All-the-Year-Round Lettuce (⅓ natural size).

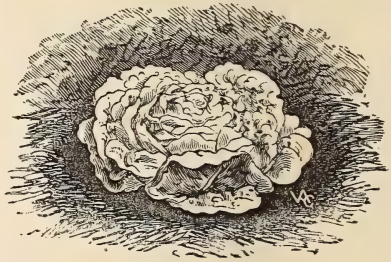
Marvel of Cazard Cabbage Lettuce.

Marvel of Cazard Cabbage Lettuce (*Black-seeded*).—Resembles the preceding, but superior to it. The head is round, very solid, not liable to split nor to grow out of shape, and always white and tender, with outer leaves of light green, broad and well crimped. A vigorous half-early variety.

Black-seeded All-the-Year-Round Cabbage Lettuce (*Blonde de Berlin*).—Young plant of a light green colour; leaves rounded,



Black-seeded All-the-Year-Round Cabbage Lettuce.



Golden-head Cabbage Lettuce.

entire at the edges, and with a tendency to become twisted in the shape of a paper bag. Head of full-grown plant round, soft, but very full; outer leaves broadly crimped, rounded, entire, and very

pale green or almost yellow; those surrounding the head are more erect and less folded than they are in the preceding kind. The head is also somewhat taller. The plant is seldom more than 8 in. in diameter.

Golden-head Cabbage Lettuce (*White-seeded*).—Rounded leaves of light golden-green, crimped, with strongly marked veins. The full-grown leaves are a light gold colour, soft, and slightly twisted. The leaves of the head are lighter still, and form a compact head, which is tall, though not very large.

Large Versailles Cabbage Lettuce (*White-seeded*).—Young plant of a rather light green colour; leaves rounded, entire, with visible veinings. It resembles the young plant of the Large White Cabbage Lettuce, but is larger at the same age. Head of full-grown plant round or somewhat long, very firm and solid, and rather pale green; outer leaves very large, entire, rather dark green, folded and crimped, especially about the midrib; those surrounding

Large Versailles Cabbage Lettuce.

Chavigny White Lettuce ($\frac{1}{6}$ natural size).

the head are broadly undulated and twisted in all directions, giving the plant a somewhat irregular appearance. The plant is 10 or 11 in. in diameter.

Chavigny White Lettuce (*Laitue Blonde de Chavigné*) (*White-seeded*).—Young plant of a light green colour, and exceedingly like the young plant of the White Summer Cabbage Lettuce, only not so light coloured; the leaves also are rather narrower towards the base. Head of full-grown plant large, full, and compact, pale green, almost yellow, on the top; outer leaves very much rounded in outline, with a few coarse, broad crimpings, and not nearly so pale in colour as the leaves which form the head; plant 8 to 10 in. in diameter. This is a very fine variety, regular in shape, quick in forming the head, slow in running to seed, and yielding, with less bulk, quite as heavy a crop as the Large Versailles Lettuce. It is highly to be recommended.

White Stone, or **Nonpareil, Cabbage Lettuce** (*Laitue grosse blonde paresseuse*) (*White-seeded*).—Young plant rather light green; leaves rounded, or shortly spathulate, flat, toothed and undulated on

the lower half. Head of full-grown plant large and tall, but flattened on the top, of a very pale yellowish green, almost the colour of wax or butter; outer leaves large, very much rounded, slightly crimped, and not quite so pale in colour as the head; plant about 12 in. in diameter. This fine Lettuce is large-sized and productive. It grows well and keeps the head perfectly in very hot weather.

White Stone, or Nonpareil, Cabbage Lettuce (⅛ natural size).

Turkish, or Butter, Russian or Asiatic, Cabbage Lettuce (*Black-seeded*).—Young plant of a uniform dull, pale green; leaves short, rounded, spathulate, and slightly toothed on the whole of the margin. Head of full-grown plant rounded, slightly flattened, of a very pale green, almost white; outer leaves resting on the ground, rounded, very entire, scarcely crimped, of an exceedingly pale green, and of an appearance betokening great thickness. The outside face of the leaves is of a still lighter tint and sometimes silvery. All the leaves are very entire, and those which form the head and also those which immediately surround it are rather crimped. Plant 8 or 10 in. in diameter.

Imperial, or Asiatic, Cabbage Lettuce (*White-seeded*).—Young plant of a uniform pale and rather dull green; leaves round, short, flat, and bluntly toothed on the whole of the margin. This variety only differs from the preceding one in the colour of its seed, which is white. Both kinds are only suitable for summer culture, for which they are highly to be recommended, as they are very productive and bear hot dry weather well.

Imperial, or Asiatic, Cabbage Lettuce (⅛ natural size).

The *Laitue Caladoise* and the German variety named *Perpignaner Dauerkopf* come very close to the Imperial Lettuce.

Green Fat Cabbage Lettuce (*Black-seeded*).—Young plant dark green; leaves short, rounded, or bluntly spathulate, very

slightly toothed on the margin, the lower ones crimped and twisted. Head of full-grown plant rounded or slightly flattened, close, firm, and surrounded by leaves with entire edges, all broadly crimped, light green, dark on the upper surface and almost silvery on the under-side; outer leaves very round, small, entire, and smooth. All the leaves are stiff and of a dense texture, somewhat resembling Spinach leaves. The plant is from about 7 to 9 in. in diameter. This is a good summer Lettuce, yielding a heavy crop with small bulk, and keeping the head very well.

Green Fat Cabbage Lettuce ($\frac{1}{6}$ natural size).

Large Normandy Lettuce (*Yellow-seeded*).—Young plant dark green; leaves long, spathulate, usually twisted, toothed towards the base, and angular on the remainder of the margin, almost more like the leaves of the Batavian Endive than Lettuce leaves. Head of full-grown plant rounded or slightly elongated, rather thick, very solid, slightly crimped, and pale green; outer leaves rounded, of a dense texture, very entire at the edges, of a uniform dark green colour, and coarsely crimped here and there. Some of the leaves spread on the ground and others stand erect around the head. The diameter ranges from 10 to 12 in. This variety is something like the Large Versailles Lettuce in appearance, but its leaves are considerably darker in colour, and it is unmistakably distinguished by the colour of the seed.

Red-edged Trocadero, or **Big Boston, Lettuce** (*White-seeded*).—Light green leaves on the young plant slightly undulating and with a red tinge on the edge; the outer leaves medium size, rounded, waving, ash-green; those of the head are turned inwards, and paler, and tinged with purple-red. The head is flat, irregular, very like that of the Crisped Lettuce, very compact, firm, red on the top, and easy to recognise. Succeeds everywhere and in any kind of cultivation.

Red-edged Trocadero Cabbage Lettuce.

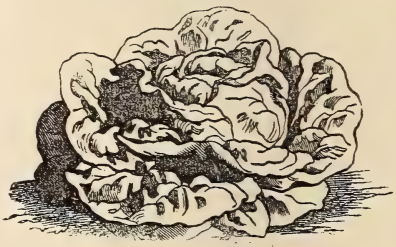
Unrivalled, or **Improved Big Boston, Cabbage Lettuce** (*White-seeded*).—An improvement on the foregoing. The head is very large, very solid, and excellent in quality. The outer leaves are not very large, and are light green and well crimped. Remarkable

for early and quick growth; it forms its head in six weeks, at least ten days before the Trocadero Lettuce. May be sown the whole season, and is fit for use during the greater part of the year. In summer, when most other sorts are withering or running to seed, it keeps its head very well.

Unrivalled Cabbage Lettuce.

Mogul Cabbage, or Black-seeded Giant Summer, Lettuce (*Laitue Grosse Brune Paresseuse*) (*Black-seeded*).—Young plant of a rather pale dull green, marked with brown spots; leaves short, rounded, entire at the end and toothed along the sides. This is a large strong-growing kind, the full-grown plant being about 1 ft. in diameter. Outer leaves very large, light green, much paler on the inner side, folded rather than crimped, and marked, as are all the other leaves, with brown spots; head tall, compact, tinged with brown-red on the top, and composed of leaves which are tolerably crimped, and become spoon-shaped as they overlap one another. This is a very hardy and exceedingly productive kind, very suitable for field culture. The *Berlaimont Lettuce*, which is in high repute in the north of France, appears to us to be identical with it.

White-seeded Brown Dutch Cabbage Lettuce (*Laitue monte-à-peine gr. bl.*).—Young plant dull green, tinged with brown on the veins; leaves rounded, spathulate, slightly toethed towards the base, the central ones soon becoming crimped and undulated. Head of the full-grown plant rounded, or slightly elongated, very full and firm, pale green, deeply tinged with red on top; outer leaves rounded, with entire margins, crimped, of a gray-green colour, edged and tinged with light brown; those which surround the head are very much crimped, folded, and twisted. All the parts exposed to the sun, whether on the upper or lower side



Mogul Cabbage Lettuce ($\frac{1}{8}$ natural size).

of the leaves, become tinged with coppery red. This is a very good kind; it is hardy, keeps the head well, and does not take up too much space when growing. The plant does not exceed from 8 to 10 in. in diameter.

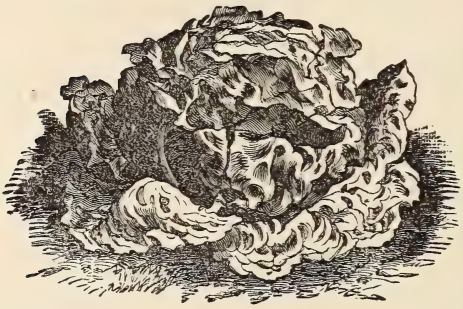
Brown Genoa Cabbage Lettuce ($\frac{1}{6}$ natural size).

Brown Genoa Cabbage Lettuce (*Laitue Palatine*) (*Black-seeded*). — Young plant green, tinged with brown; leaves rather short, rounded, spathulate, entire at the margin, except towards the base, where it is toothed; veinings red. Head of full-grown plant medium size or large, rounded, very solid without being hard, and deeply tinged with brown-red on the top; outer leaves rather large, entire at the edges, but crimped, folded, and twisted, tinged with red and with dark brown blotches interspersed; plant 10 to 12 in. in diameter. This variety is one of the hardiest and least troublesome to grow. No other kind is superior to it for summer or autumn culture, either in productiveness or the certainty of the crop. It heads very quickly, keeps the head well, and withstands the early frosts in the latter end of autumn. During the latter part of summer and all through the autumn it furnishes more than half of the Cabbage Lettuces which are sent to the Central Market at Paris.

Giant Summer Cabbage Lettuce.

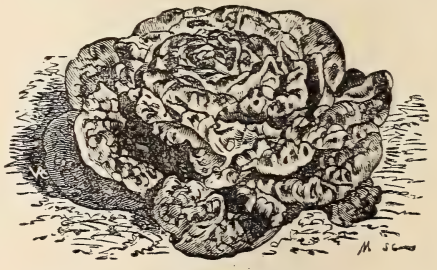
Giant Summer Cabbage Lettuce (*Yellow-seeded*).—In the young plant light green leaves turning to yellow under the action of the sun; leaves long-stalked and spiny at the edges, slightly folded outwards. At maturity the leaves are large, crimped, and yellow-white. The head is tall, large, rising well out of the leaves, tinged with red, and sometimes spotted brown at the edge. A good summer Lettuce, keeping its head well, and very productive.

Brown Stonehead, or Blockhead, Lettuce (*White-seeded*) The leaves in the young plant light green, streaked with brown towards the edges and slightly crimped, rounded, and somewhat recurving. In the full-grown plant the outer leaves are large, crimped, and tinged brown; the head green, marked with bronze-coloured blotches, which are most conspicuous on the crimpings. It is a splendid summer Lettuce, heading promptly and not very apt to run to seed.



Brown Stonehead, or Blockhead, Cabbage Lettuce.

Marvel, or Red Besson, Cabbage Lettuce (*Black-seeded*).—Young plant of vigorous growth, tinged all over with brownish red; leaves short, almost round, very entire, with the edges turned up in a kind of spoon shape. The plant is easily recognised from its earliest age by its colour. The full-grown plant is stout and rather thick-set, and of rapid growth. Head rounded, slightly flattened on the top, where it is deeply tinged with bright red, which contrasts in a striking manner with the very pale tint of those parts of the plant which are not exposed to the sun. The outer leaves are similarly coloured with red on the exposed parts. All the leaves are rounded in outline, more or less undulated, and coarsely crimped here and there. This is the most highly coloured of all the Lettuces which are commonly grown about Paris, and is of a still deeper red than the old variety known as the *Rouge Chartreuse*. The plant is about 1 ft. in diameter. This variety may be grown almost all the year round, as one of its French names indicates, but it does best in spring and summer. The head forms very quickly and keeps firm for a long time, even in very hot weather.



Marvel, or Red Besson, Cabbage Lettuce.

Improved Spotted Cabbage Lettuce (*Laitue Sanguine Améliorée*) (*White-seeded*).—Young plant marked with very small and fine red spots and streaks; leaves rounded, entire, undulated or folded. In the central leaves the green colour disappears altogether under the numerous small red-brown spots

with which they are covered. In the full-grown plant the head is exceedingly close, of medium size, round, or slightly flattened on the top, the inner leaves being very much folded and of an ivory-white, very finely and plentifully streaked with carmine. The top of the head is of a deep copper colour. The outer leaves, which are small, numerous, and less crimped as they are nearer to the ground, are covered with a vast number of small red spots, which give the whole plant a bronzy tinge. The plant seldom exceeds from 7 to 9 in. in diameter. This variety, although small, is productive. It is also early and keeps the head well. The very lively colour of the spots forms a pleasing contrast on the leaves when they are blanched, making a nice-looking salad, which is at the same time tender and of excellent quality.

Improved Spotted Cabbage Lettuce ($\frac{1}{6}$ natural size).

Early Ohio, or **Nonpareil, Lettuce** (*White-seeded*).—When young the leaves are very light green, undulating, fringed and closely crimped, the inner leaves erect. A very pretty variety, something like the Simpson Lettuce, but with smaller, whiter, finer cut, and more erect leaves, and also heading more readily. The head is rather tall and pointed, something like that of the Hooded or Hardy Green Winter Endive. It is a true summer Lettuce, very tender and crisp, well suited for hot climates, and welcome everywhere.

Early Ohio, or Nonpareil, Cabbage Lettuce.

Early Simpson Cabbage Lettuce ($\frac{1}{6}$ natural size).

Early Simpson Cabbage Lettuce (*White-seeded*).—Young plant pale green, almost yellow; leaves angular, very much undulated at the margin, curled and rumpled. Head of full-grown plant seldom well formed; leaves large, light green, with a shining surface, very fresh and pleasing to the sight, very much curled and undulated, finely crimped, very numerous, and tender even when they do not form a head. This is one of the best summer Lettuces, and is very

suitable for growing in warm climates. All it requires is to be plentifully watered.

The *Early Silesian Lettuce* and the American varieties named the *Hanson Lettuce*, *New Large-head Lettuce*, *Hamilton Market Lettuce*, *Large Indian Lettuce*, and *Early Curled Silesian Lettuce*, all come so near the Early Simpson, that it is difficult to discover any difference between them.

White Silesian Lettuce (⅛ natural size).

White Batavian, or Silesian, Lettuce (*White-seeded*).—Young plant of light or yellow green; leaves slightly toothed, undulated, and tinged with pale red on the margin. Head of full-grown plant very large, but not very firm, pale green tinged with light red, rounded or slightly flattened; outer leaves broad, curled, finely crimped, very much undulated and broadly toothed at the edges, where they are also slightly tinged with red. The plant is 12 to 14 in. in diameter.

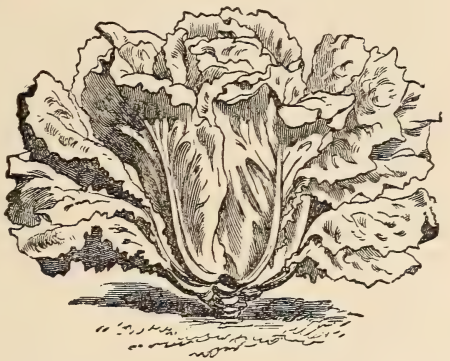
The variety named *Laitue Belle et Bonne de Bruxelles* comes very near the White Silesian. Sometimes it is almost entirely without the red tinge, and then it very much resembles the following kind.

Curled German Batavian, or Curled Silesian, Cabbage Lettuce (*White-seeded*).—Leaves of the young plant broad and short, with the edges scalloped and undulated, and of a light, slightly yellowish, green colour. Head of full-grown plant large, soft, rounded or slightly flattened, and very pale green; outer leaves crimped, curled, and slightly cut at the edges. The plant is 11 or 12 in. in diameter. With the exception of its very light colour, this variety is not unlike the Neapolitan Cabbage Lettuce. It is a vigorous-growing kind, very easily grown, and yields a sure crop in summer.

Curled German Batavian Lettuce (⅛ natural size).

Brown Batavian, or Marseilles, Cabbage Lettuce (*White-seeded*).—Young plant very dark green; leaves very long, narrow, sharply toothed at the edges; midrib and margin of the leaves tinged with brown. Head of full-grown plant very tall and

elongated, more like the head of a Cos than that of a Cabbage Lettuce, almost always soft, and seldom well formed; outer leaves very large, erect for some portion of their length, then turned backwards, crimped, very much undulated and puckered at the edges, and of a dark green colour tinged with brown on all the parts that are most exposed to the sun. The plant is about 16 in. in diameter, and nearly the same in height. This variety does not succeed well in the climate of Paris, but is in high repute in warm climates, and even in the south of France.



Brown Batavian, or Marseilles, Cabbage Lettuce (⅛ natural size).

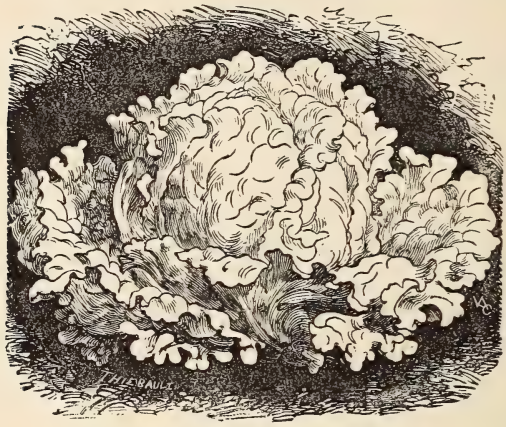
Neapolitan Cabbage Lettuce (*White-seeded*).—Young plant dark green; leaves shortly spathulate, wavy at the edges, toothed, and slightly crimped. Head of full-grown plant large, depressed, sometimes almost flat, whitish green, and slightly crimped; outer leaves of a rather dark green, spreading on the ground, finely crimped, very much curled and undulated at the edges. The plant is often 12 to 14 in. in diameter. This variety keeps the head better, perhaps, than any other kind of Lettuce. It often happens that the flower-stem is unable to make its way through the head, unless the latter is cut so as to give it a passage.

Blond Stonehead, or Blockhead, Lettuce (*White-seeded*).—The leaves at first are a very light green, almost white, tinged yellow, sparingly crimped, much waving at the edges and slightly fringed or cut. The head is very large, rather flat and solid; the outer leaves are large, broad, spreading, very finely crimped, and waving at the edges, much like those of Neapolitan Lettuce, but much lighter in colour. An excellent summer Lettuce much grown by market-gardeners around Paris.

Neapolitan Cabbage Lettuce (⅛ natural size).

Large Bossin Cabbage Lettuce (*Black-seeded*).—Young plant a light green, almost yellow, with some brown spots; leaves longish, toothed, and tinged with brown on the veins and edges.

Head of full-grown plant large, flat, light green, tinged with brown; outer leaves very large and luxuriant, spreading widely on the ground, and forming a rosette 16 in. or more in diameter, very much toothed and undulated at the edges, slightly crimped, and irregularly shaded and spotted with red-brown. This is a very vigorous-growing and hardy kind, bearing hot weather well, but the weight of the produce is not in proportion to the extent of ground covered by the plants.



Blond Blockhead Cabbage-Lettuce.

Malta, or Ice, Drumhead Lettuce (*White-seeded*).—Young plant a uniform light green; leaves spathulate, long, veined, much toothed, and slightly undulated on the whole of the margin, and somewhat twisted. Head of full-grown plant composed of pale green leaves, which are folded and marked with elongated crimpings. When the head is commencing to form, it is something like that of a Cos Lettuce, but it widens and becomes nearly round when fully grown. The midribs of the leaves are thick, and often project from the head. Outer leaves very large, light green, with the edges folded, slightly cut, and sometimes rolled inwards on the under-side. The plant is 12 to 14 in. in diameter, and about the same in height. The Malta Lettuce grows rapidly, and bears hot weather well, but it does not keep the head long. It is especially suitable for warm climates.

Large Bossin Cabbage Lettuce ($\frac{1}{6}$ natural size).

Green Madrid Cabbage Lettuce (*Black-seeded*).—The head in the full-grown plant is tall, with outer leaves of a glossy dark

green. An excellent winter Lettuce, keeping well and very productive. Although hardy enough for the Paris winter, in mild climates its good qualities are seen to perfection. Being of compact growth, it may be planted close.

Malta, or Ice, Drumhead Lettuce ($\frac{1}{8}$ natural size).

Lebœuf Lettuce (*White-seeded*).—Young plant dark green; leaves very large, the first spathulate and flat, the succeeding ones shorter, crimped at the base, with broad white midribs, and more like the leaves of a Cos than those of a Cabbage Lettuce. Head of full-grown plant tolerably like that of a Cos Lettuce, composed of leaves pressed close to, but not regularly overlapping, one another; outer leaves elongated, erect for a portion of their length, and then turned backwards near the end, all more or less folded in the direction of the midrib, and folded, crimped, and often twisted at the edges. The plant is 7 or 8 in. in diameter, and as much, or even more, in height. Except that its leaves are somewhat stouter and larger, this variety is tolerably like a Ground Cos Lettuce. It has the peculiarity of frequently producing shoots at the base of the head.

In addition to the summer Lettuces already described, the following varieties appear to us the best and most distinct:—

Bellegarde Cabbage Lettuce (*White-seeded*).—A tall, broad plant, the head surrounded with large leaves, which are cut and deeply toothed on the edges. In general appearance it resembles the Large Bossin Cabbage Lettuce, but is smaller and rather more deeply coloured.

Lebœuf Lettuce.

Brown Cabbage Lettuce (*Yellow-seeded*).—This variety comes very near the Brown Dutch Lettuce in shape, colour, and general appearance, but differs from it in having the leaves more crimped and of a rather redder tinge, and differs entirely from it in the yellow colour of the seed. In Anjou there is another yellow-seeded kind grown, which must not be confounded with this one. The Anjou variety is small, entirely green, and is chiefly adapted for winter culture, but it is not very extensively distributed, nor does it seem deserving of being more so.

Black-seeded Brown Dutch Cabbage Lettuce (*Laitue Rousse Hollandaise gr. n.*).—Young plant of a dull green colour, slightly tinged with light brown; leaves short, roundish, or spathulate, finely toothed towards the base, where they are of a reddish colour, as are also the veins. This variety differs from the Brown Genoa Cabbage Lettuce chiefly in having no spots on the leaves, and the plant altogether is not so brown. In other respects the two kinds are much alike in size and general appearance.

Black-seeded Brown Dutch Cabbage Lettuce.

Dutch Cabbage Lettuce (*Black-seeded*).—Young plant of a uniform dark green, leaves short, rounded, flat, slightly toothed near the base, the inner leaves crimped and sinuated. Head of full-grown plant small, round, very close and hard, and surrounded by entire, crimped, and slightly undulated leaves, which form a very compact rosette. The plant is, at most, from 6 to 8 in. in diameter. Its general appearance resembles that of the Large White Cabbage Lettuce, with which, however, it cannot be confounded, if the difference in the colour of the leaves and of the seed is taken into consideration. Small-sized Lettuces, like this variety, are often valuable to gardeners for growing amongst other vegetables.

Cendrette du Havre Lettuce.—A handsome summer Lettuce of medium size, somewhat like the Trocadero Lettuce, but with the leaves more crimped, and tinged with darker brown on the top.

Fontenay Lettuce.—A fine variety of Cabbage Lettuce, very slow in running to seed, large and productive. It resembles the Turkish Cabbage Lettuce, but is larger. It is very light coloured in all its parts.

Frankfort Lettuce.—A handsome variety, resembling the Black-seeded All the Year Round Cabbage Lettuce, but not so broad, and with a taller, egg-shaped head, of a peculiar gold shade.

Black-seeded Dutch Cabbage Lettuce ($\frac{1}{8}$ natural size).

Mortatella Cabbage Lettuce.—A very distinct variety, of Italian origin. A peculiarity which belongs almost exclusively to this Lettuce is that the stem is long like that of many round-headed Cabbages (especially those sown in autumn), in consequence of which the large outer leaves, instead of forming a rosette close to the ground, grow in tiers, the head forming at some distance above the soil. These outer leaves are of a dark

dull green, short, rounded, and often hollowed like a spoon. The head is compact, of medium size, a little longer than broad, and frequently tinged with red on the upper part; it preserves its shape for a long time. The axillary buds of the lower leaves sometimes become developed into sprouts or shoots, which are rarely of any great size. In Italy this Lettuce is said to grow well all the year round, but, from our experience of it, it is chiefly valuable as an autumn and winter Lettuce in the neighbourhood of Paris.

Mortatella Cabbage Lettuce.

Laitue de Néris.—A fine summer Lettuce, very much resembling the Mogul Lettuce, except that it is much lighter in colour. It is very much grown and highly thought of in the central parts of France.

New Gem Cabbage Lettuce.—A pretty little kind, with a compact head, almost devoid of outer leaves. It takes up very little space when growing, and produces a comparatively large and very solid head. In general appearance the plant is rather like the Roquette Lettuce, but is somewhat larger growing, and does not bear the winter.

Pas de Calais Cabbage Lettuce.—Young plant of a uniform dark green colour; leaves elongated spoon-shaped, slightly angular at the margin, and toothed and undulated towards the base. The full-grown plant is stout, and rather like the Mogul Cabbage Lettuce, but differing from it notably in the total absence of brown spots from the leaves. It is also somewhat taller, and the head is more ovoid in shape and of a bronzy, rather than a red, colour in the parts exposed to the sun. Seed black.

Laitue Rose, ou **Rouge d'Été.**—A very distinct variety, not spotted, but very deeply tinged with brownish red on the edges of the leaves and on the head. It is something like a brown winter Lettuce, but more deeply coloured, and the head is taller. It is very suitable for growing in the latter end of spring, and in summer and autumn, and is often to be met with in the Central Market at Paris.

Red Cabbage Lettuce (*Laitue Rouge Chartreuse*).—This fine variety has the same shape and, to a certain extent, the same appearance as the Palatine Lettuce, but it is not spotted, and the colour of the leaves is a much more decided red. It is a good summer variety, and will also bear the winter, if not too severe. Seed black.

Spotted Cabbage Lettuce (*White-seeded*).—A rather compact variety, with rounded, twisted leaves, forming a close and very

tender head. The inner leaves are almost white, and streaked with bright red; the outer ones are of a dark green with brown blotches.

Spotted Cabbage Lettuce (*Black-seeded*).—This variety differs from the preceding one in the fineness of the red streaks with which the leaves are marked, which gives the whole plant a bronzy tinge. The inner leaves appear as if dusted with red on a white ground. Both this and the preceding kind have been superseded by the new Improved White-seeded variety.

Tannhäuser.—A compact variety, with thick, rounded leaves and round head, rather like the Large Normandy Lettuce, but differing from it entirely in the colour of its seed, which is black.

White Stone Cabbage Lettuce.—A compact plant, with crimped, wavy leaves of a light green, almost yellow, colour, tinged with light brown on the top of the head, which is of medium size, close, and somewhat flattened. It is a good summer variety, hardy, and slow in running to seed. The only fault it has is its slightly bitter flavour. Seed white.

De Zélande.—A handsome and compact variety of Cabbage Lettuce, of a very pale yellow colour, remarkably like the Berlin White Summer Lettuce, except that the head is almost ovoid in shape, being longer than broad. Seed black.

In America they cultivate a very large number of varieties of Cabbage Lettuce, which, though not exactly similar, have many points in common with our own:—

The **Yellow-seeded Butter** and **Market Gardener's Private Stock Lettuces** are evidently closely related to the All the Year Round, or White Berlin Summer Lettuce.

Premium Cabbage Lettuce, Large Yellow Surehead Lettuce, Philadelphia Butter Lettuce, Silver-ball Lettuce, Black-seeded Butter Lettuce have many points of similarity with the Large White Stone Summer Lettuce.

Fox Sterling Lettuce, Hubbard's Market Lettuce, Golden Queen Lettuce: closely allied to the All the Year Round Lettuce.

Russian Lettuce, St. Louis Butter Lettuce, Deacon or **San Francisco Market Lettuce**: closely related to Imperial or Asiatic Lettuce.

Myer's All-Right Lettuce resembles the Red-edged Trocadero Lettuce.

Large Loaf Lettuce, Maximum Lettuce, and **California Cream Butter Lettuce** resemble the Large Green Lettuce.

Large Brown and **Hardhead Lettuce** are in most respects the same as Brown Stonehead Lettuce.

Chartier Lettuce, India-head Lettuce, Marble-head Mammoth Lettuce resemble the White Silesian Lettuce.

Eureka Lettuce, Sugarloaf Lettuce, Tomhannock Lettuce, all red-coloured Lettuces, with a strong resemblance to the Brown Batavian Lettuce.

Drumhead Lettuce, Detroit Market Gardener's Lettuce, Nonpareil Lettuce, Wonderful Lettuce have many points of similarity with the Neapolitan Cabbage Lettuce.

Hamilton Market Lettuce and **Golden Curled Lettuce** closely resemble the Blond Stonehead Lettuce.

Gardener's Favourite Lettuce, Moonshine Lettuce, the **Morse Lettuce, Perpetual Lettuce, Hanson Lettuce, Tilton's White Star Lettuce, New Large-head Lettuce, Large India Lettuce, Early Curled Silesia Lettuce** are very nearly related to the Simpson Early Lettuce.

Hardy Green Winter Lettuce, Black-Seeded Tennis-ball Lettuce, and **Salamander Lettuce** resemble nearly Versailles Blond Lettuce.

Boston Market Lettuce appears to be extremely similar to De Zélande Lettuce, or at least intermediate between that and the All the Year Round Lettuce.

COS LETTUCES

French, Laitues romaines. *German*, Römischer *oder* Binde Salat. *Flemish*, Ezelsoor salat. *Dutch*, Roomsche latouw. *Italian*, Lattuga romana. *Spanish*, Lechuga romana. *Portuguese*, Alface romana.

The Cos Lettuces are distinguished from the common Cabbage Lettuces by the shape of their leaves, which are elongated and almost always somewhat spoon-shaped, and also by the usually large size of the midrib, which in some varieties forms a regular white, tender, and very thick chard.

They are grown in exactly the same way as the Cabbage Lettuces, only that, as they do not naturally form a head so well as these, gardeners are in the habit of tying up the leaves together in order to blanch the inner ones. There are winter, spring, and summer varieties of Cos Lettuces. For forcing, and for early sowing in the open air, the preference is given to the White Paris Cos, next to which come the Green Paris Cos and the Gray Paris Cos, all of which are closely allied kinds. For summer culture the same varieties may be employed, and also the Florence Cos, or Magnum Bonum (*Romaine Alphange*), the Giant Cos (*Romaine Monstreuse*), and the Brown, or Bath, Cos (*Romaine Brune Anglaise*). Lastly, for winter culture in the open air, the Green Winter Cos, the Royal Green, and the Blood-red Winter Cos are the kinds most commonly selected.

I. Winter Varieties of Cos Lettuce

Green Winter Cos Lettuce (*Black-seeded*).—Leaves of young plant smooth, dark green, rather flat and rounded, but narrowed towards the end; margin entire, with the exception of a few teeth on the lower third part. Full-grown plant compact, with the leaves closely pressed against one another, erect, and slightly turned back at the ends; blade of the leaf shortly spathulate or oval, smooth, and of a very light green colour, with a glazed appearance; veins numerous and very distinctly marked. The head forms of itself without being tied up; it is not tall, but is firm, compact, and very solid. This is a very old and very excellent variety; it is very little affected by frosty weather, and yields a heavy crop for the moderate size of the plants.

Green Winter Cos Lettuce.

The English *Hardy White Winter Cos* is only a paler-coloured sub-variety of this kind.

Royal Green Winter Cos Lettuce (*Black-seeded*).—Leaves of young plant shortly spathulate, slightly crimped and twisted towards the base, rather deeply toothed on the lower two-thirds of the margin, and a uniform dark green. Full-grown plant vigorous, with light green shining leaves, oblong, slightly crimped, somewhat turned back at the edges, until the head begins to form, when they turn the other way, becoming spoon-shaped as they overlap one another; head rather tall, solid, and blanching without being tied up. This variety is chiefly distinguished from the preceding one by the rosette which it forms before heading being less spreading, stiffer, and of a paler and more glistening green colour.

Royal Green Winter Cos Lettuce.

Red Winter Cos Lettuce (*Black-seeded*). — Young plant deeply tinged with brown red; leaves spathulate, flat, smooth, and slightly toothed at the base. Head of full-grown plant tall, long, entirely green with the exception of a brown-red tinge on the top; outer leaves long, rounded at the ends, very entire, nearly flat, and

very deeply coloured with red-brown. It is only in the centre of the plant, near the head, that any green colour is visible. This variety generally heads very well without being tied up. It is hardy, productive, and remarkably slow in running to seed. It is also so constant in character that it is hardly ever found to vary or degenerate.

Red Winter Cos Lettuce.

II. Spring and Summer Varieties of Cos Lettuce

Green Paris Cos, or **Buckland Cos, Lettuce** (*White-seeded*).—Young plant dark green; leaves erect, with white midribs, elongated, spathulate, and very much toothed towards the base. Head of full-grown plant long, pointed, or slightly blunt, showing three well-marked faces; outer leaves erect around the head, narrow, rather dark glossy green, and with very white midribs. A fast-growing kind, not so large as the White Paris Cos, but somewhat earlier.

Green Limagne Cos Lettuce (*White-seeded*).—The young plant has dark green erect leaves, folded at the edge, angular, and toothed at the base. The head is round and very firm; the leaves strong, crimped, a lighter colour than those of the Green Paris. A vigorous and quick grower.

Green Paris Cos Lettuce.

Gray Paris Cos Lettuce (*White-seeded*).—The young plant of this variety differs only from that of the White Paris Cos in that it is decidedly darker in colour. Head of full-grown plant well rounded at the top, and more thick-set than that of either the preceding or the following kind; outer leaves large, rounded at the end, and not so light-coloured as those of the White Paris Cos; those forming the head are very much hollowed out like a spoon. This variety is chiefly grown under *cloches* or bell-glasses, and for that mode of culture

it is generally preferred by the Paris market-gardeners to all other kinds.

White Paris Cos Lettuce (*White-seeded*).—Young plant pale green ; leaves rather erect, spathulate, toothed and slightly crimped towards the base, and broad and rounded at the ends. Head of full-grown plant long and tall, but very thick, blunt or rounded at the top, and with the faces or angles less marked than those of the Green Paris Cos ; outer leaves spathulate, large, luxuriant, light green, and rather crimped ; those forming the head are always folded, of a very pale green colour, and with the midrib white and very prominent. The most grown of all the Cos Lettuces, and perhaps of all other kinds, it appears to be very well adapted for all temperate climates, and even for warm ones, as it is grown all over the world. It likes rich soil and plentiful waterings, and is grown under bell-glasses or *cloches* for an early crop, and in the open air from April to the end of autumn. When carefully

Gray Paris Cos Lettuce.

White Paris Cos Lettuce
($\frac{1}{6}$ natural size).

Early White Self-folding Trianon Cos Lettuce.

attended to, it heads in seven or eight weeks after being planted out in the open air, and keeps the head firm for a remarkably long time. A well-grown plant will often weigh over 6½ lb.

Early White Self-folding Trianon Cos Lettuce (*White-seeded*).—A very pretty strain of the Paris White Cos Lettuce, from

which it differs only when nearly full grown in its whiter colour, leaves more crimped, broader ribs, and in being several days earlier.

Large White Du Chesnay Cos Lettuce (*White-seeded*).—The young plant is pale, slightly yellow-green; the leaves small, narrow, stiff, erect, toothed at the edges, and twisted at the base. A Paris White Cos of larger size and about a fortnight later. Grows well under glass bells. Grown in the open air it is not liable to rust.

Ground Cos Lettuce (*Black-seeded*).—Young plant short and compact, of a uniform, rather dark, clear green colour; leaves stiff, short, oval, slightly spoon-shaped, erect, and with a very prominent white midrib. Full-grown plant very thick-set, and of a dark, shining green colour; head, short, very close and hard, commencing so low down that it appears to be partially buried in the ground; outer leaves very stiff, somewhat pointed, almost always folded in two and curved back outwardly, slightly crimped, with the midrib stout, stiff, and very large for the size of the leaves. The leaves of this variety are very crisp, and leave a slightly bitter after-taste which is not disagreeable. The plant bears frosty weather well, if slightly protected. As the head is very solid, the crop is pretty heavy for the small size of the plants.

Ground Cos Lettuce
(⅛ natural size).

III. Summer Varieties of Cos Lettuce

White-seeded Florence, or **Magnum Bonum, Cos Lettuce.**—Young plant, of a dull, pale green; leaves broad, oval, slightly toothed, and faintly tinged with light brown at the base, and also on the margins and veins. The full-grown plant does not head well unless it is tied up. Outer leaves very large, and especially very broad, rounded in outline, broadly crimped, with the edges turned backwards, and forming a large and very open rosette; they are of a gray-green colour, very slightly tinged with light brown at the edges and on the parts exposed to the sun. The average diameter of well-grown plants is 16 in., or thereabout.

Florence, or Magnum Bonum, Cos Lettuce
(⅛ natural size).

Black-seeded Florence, or **Magnum Bonum, Cos Lettuce.**—Leaves of young plant spathulate, large, longish, bluntly toothed, and tinged with pale brown at the base and on the veins and edges. The plant is throughout much paler in colour than the young plant of the preceding variety. Head of full-grown plant elongated, seldom forming unless tied up; outer leaves very long and broad, pale green or yellow, slightly tinged with russet on the parts exposed to the sun, finely crimped, more pointed, and apparently thinner in texture, than those of the preceding kind. They also form a broader rosette, this being often 20 in. in diameter.

White Long-standing Cos Lettuce.

White Long-standing Cos Lettuce (*Black-seeded*).—Young plant pale green, leaves spathulate, with long stalks, curved outwards and moderately toothed. Resembles the Florence Cos Lettuce, but its leaves are more numerous and stouter, and its head is firmer. Much grown in the south-west of France, and it keeps its heads well during the hot summer, when some popular varieties head badly and run rapidly to seed.

Balloon Cos Lettuce ($\frac{1}{6}$ natural size).

Balloon Cos Lettuce (*Black-seeded*).—Young plant a pale, clear green colour; leaves erect, rather narrow, toothed on the entire margin, the teeth on the lower half being long and sharp, while those towards the end of the leaf are faintly marked; the veins of the leaf, also, are not very clearly defined there. Full-grown plant

very vigorous, with a large, broad, rounded head, slightly flattened at the top, full and firm; outer leaves not so much crimped as those of the White Paris Cos, but greener in hue and more rounded at the ends. The White Paris Cos heads sooner than the Balloon Cos, but the latter is considered hardier, and is very suitable for sowing in autumn. It is also a remarkably productive variety.

Monstrous Brown Cos Lettuce (*Black-seeded*). — Young plant vigorous growing, half-spreading; leaves fairly large, broad from the base, pale dull green, tinged with light brown on the veins and edges; margin slightly sinuated or bluntly toothed. Head of full-grown plant oblong, not forming well unless tied up; outer leaves large, numerous, in a broad and very open rosette, almost spreading on the ground; they are entire in outline, but the edges are twisted and waved, and the surface is crimped and puffed from the midrib towards the edges. All the parts exposed to the sun are very deeply tinged with russet, while the rest of the plant is of a wan dark green. The general appearance of the plant is shining, as if varnished, not dull like the Florence varieties. It is often 20 in. in diameter.

Brown, or Bath, Cos Lettuce (*White-seeded*).—Young plant of a dull green colour; leaves spathulate, deeply toothed to the very end, and tinged with red on the edges and veins. Head of full-grown plant oblong, almost pointed, pale green, slightly tinged with dull brown; outer leaves rather spreading, entire, not much crimped, finely toothed on the edges, and tinged on all the parts exposed to the sun with pale brown on a gray-green ground. A well-grown plant is about 14 in. in diameter. This is an exceedingly hardy kind, and does well under summer or autumn culture; it sometimes also withstands the winter. Although it heads well enough when left to itself, it is usually tied up to increase the number and expedite the production of tender blanched leaves. The contrast of colour in the parts of the leaves which are bronzed by being exposed to the sun and those parts which are covered is very striking in this variety. This, and the following variety, are especially suitable for winter Lettuces in England.

White-seeded Bath Cos Lettuce.

Black-seeded Bath Cos Lettuce.—Young plant somewhat paler than that of the Common or White-seeded Bath Cos, but similar in other respects. The full-grown plant does not differ very materially from the preceding kind, except in the colour of the seed; however, there is a very apparent disparity between the two varieties in the habit of the plants, and the manner in which the leaves overlap one another, those of the black-seeded kind being shorter, forming a rosette, which spreads more broadly on the ground, and being slower in standing erect to form the head; they are also more toothed at the edges. The two varieties are alike in productiveness, earliness, and quality.

Black-seeded Bath Cos Lettuce
(⅛ natural size).

Spotted, or **Aleppo, Cos Lettuce** (*White-seeded*).—Leaves of young plant half-erect, stiff, oblong, toothed at the edges of the lower half, of a light green colour, which is almost entirely hidden by a multitude of brown-red spots, which are usually very small and often confluent. The full-grown plant does not head unless tied up. Outer leaves entirely spreading, almost always folded along the midrib, very much plaited, undulated, and twisted, and very much tinged with deep brown-red. When artificially blanched, the leaves of this variety exhibit the same red variegation on a white ground as those of the Dark-red Cabbage Lettuce. The plant is about 16 in. in diameter.

Spotted, or Aleppo, Cos Lettuce
(⅛ natural size).

Improved Spotted Cos Lettuce (*Black-seeded*).—Young plant deeply tinged with brown-red on a green ground; leaves rather short, entire, rounded, spathulate. It is much dwarfer and more compact than the young plant of the preceding variety, and also not so red. The full-grown plant has erect leaves, closely pressed against one another, and surrounding an oblong, short, and rather compact head. Outer leaves stiff, rounded or blunt at the ends, not much crimped,

a deep green colour, with brown spots and blotches. This Lettuce heads of itself, but the produce is better when it is tied up, and it then yields a large quantity of salad for the small size of the plant, which does not exceed 10 or 12 in. in diameter. This variety differs entirely from the preceding one in having all its leaves erect before they form the head, giving the plant somewhat the shape of a funnel, while in the other kind the leaves are spreading, and even turned backwards.

Sprouting Cos Lettuce (*White-seeded*).—Introduced from the Pamirs of Central Asia, it is very hardy, and proof against drought. The leaves are long, and a dull light green. It does not form a head, but produces numerous leafy tender shoots, which issue vertically from the axils of the lower leaves. As a salad it is excellent in default of better.

Sprouting Cos Lettuce.

We shall now proceed to mention a few other varieties, which, although inferior in importance to those already described, nevertheless possess a certain amount of merit.

Brunoy White Cos Lettuce.—A rather leafy plant, not heading unless tied up; leaves somewhat folded, entire at the edges and turned back at the ends. This variety grows to a considerable size, but runs to seed rather rapidly. There are both a white-seeded and a black-seeded form of it, the latter of which appears to be the same as the English variety named Ivery's Nonesuch.

Romaine Blonde de Niort.—This fine large variety is grown in Vendée, where it is highly esteemed. It very much resembles the Black-seeded Florence Cos, but runs to seed rather sooner. The seed is white.

Romaine de Chalabre.—A very good kind of winter Cos for the south of France, and even at Paris it bears ordinary winters well. In appearance it rather resembles the Green Paris Cos, but it grows much larger, and has the leaves tolerably toothed in the lower half.

Romaine Epinerolle.—A variety almost intermediate between the Green and the White Paris Cos Lettuces, and apparently hardier

than either, but at the same time not so tender or delicate in flavour. It is especially suitable for the south of France, where it can be grown in winter.

Romaine Frisée Bayonnaise; R. Parisienne; R. du Mexique.—Under these three names two or three kinds of Cos Lettuces are grown which are rather like the Brown Batavian Lettuce. Like it, they are of vigorous and rapid growth, but somewhat leathery in texture. They are suitable for warm climates, and should be tied up in order to blanch the leaves and make them tender.

Romaine Chicon Jaune Supérieure.—This may be considered as merely a sub-variety of the White-seeded Florence Cos, from which it is distinguished by having a shorter and entirely light-coloured head.

Magdalena Cos Lettuce.—Closely allied to the Giant Cos, but taller and lighter in colour. The leaves are large, pale, and tinged with red, especially at the edges. The plant almost heads of itself without being tied up. The head is not very solid. Seed black.

Dwarf White-heart Cos Lettuce. — Of American origin; resembles the White Paris Cos Lettuce.

SMALL or CUTTING LETTUCES

French, Laitues à couper. *German*, Schnitt-Salat. *Dutch*, Snij salade. *Italian*, Lattuga da taglio. *Spanish*, Lechuguino.

A certain number of varieties of Lettuce never form a head, but compensate, as it were, for this by producing a great abundance of leaves, which grow again after being cut, thus furnishing a large supply of green vegetables in a limited space. These are known by the general name of Cutting Lettuces, and a certain number of kinds are in cultivation. Sometimes some of the Early White Cabbage Lettuces are treated as Cutting Lettuces, especially the Crisped Lettuce and the Georges Lettuce, but the varieties which we are about to describe never form a head, and consequently can never be grown except as Cutting Lettuces.

White Cutting Lettuce (*White-seeded*).—A variety with spathulate leaves, which become shorter and rounder as the plant advances in growth, with almost entire edges, slightly waved and toothed towards the base. If the leaves are not cut when the plant is young, the central ones become folded and rumpled so as to form a kind of heart, but not a true head. The plant soon runs to seed. This variety is chiefly grown in frames.

Black-seeded Cutting Lettuce.—A very distinct variety, forming a tuft 10 to 12 in. broad, dense and matted, and somewhat resembling a Curled Endive. Leaves cut into rounded lobes, twisted and puckered, of a rather dark green on the upper surface and somewhat gray underneath. This is a hardy and very productive

kind, and is well adapted for growing in the open air. The leaves are entirely green at the ends and edges where they are exposed to the sun and air, but elsewhere they are white, like Endive leaves.

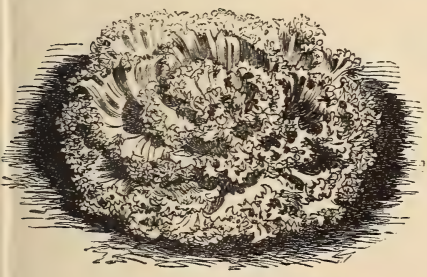
Beauregard Lettuce.—A distinct variety, with leaves deeply cut and toothed at the edges, and a fairly well-formed head. It is

Black-seeded Cutting Lettuce ($\frac{1}{6}$ natural size).

Laciniated Beauregard Cabbage Lettuce.

sometimes called California Lettuce, but this name should be discarded in order to avoid a confusion with the California Curled Lettuce described below.

California Curled Lettuce (*White-seeded*).—Young plant of light green, with rounded leaves, finely cut edges; the central leaves are folded into a barely perceptible head. It is an intermediate variety between the Cabbage Lettuce and the Cutting Lettuces. It grows into a broad rosette like an Endive. The leaves are light green, entire for the largest portion of their surface, and much puckered and folded at the edges. It is slow in running to seed. The *Grand Rapids Lettuce* comes very near it, but is less curly.



California Curled Lettuce.

American Curled Lettuce.

American Curled, or **Gathering, Lettuce.**—A kind of Batavian Lettuce, with the leaves twisted, puckered, folded at the margin, and strongly tinged with coppery red at the edges. It is distinct and pleasing in appearance, but does not head well. It is used as

a green salad, like the Early Simpson Lettuce, and sometimes the first leaves are plucked off very early, with the view of making a later gathering of the new leaves which are to follow, or of the sprouts or shoots which grow from the axils. From this it derives its name of "Gathering Lettuce."

New Egyptian Sprouting Lettuce (*White-seeded*).—Resembles the American Curled Lettuce, but is lighter in colour, and the leaves are longer and less crimped. It is remarkable for the abundance of its shoots. These shoots are composed of only a few long narrow leaves, and are very like the Cutting Lettuces raised on hot-beds. Their use is the same.

Oak-leaved Cutting Lettuce.—The plant forms a tallish rosette, tufty and rather full in the centre, 12 to 14 in. broad, composed of very numerous leaves, which are rather long, light green in colour, divided into rounded lobes, sinuated, and broader and far less undulated than those of the Black-seeded Cutting Lettuce. This variety is hardy and bears the winter well. It grows very well again after being cut. Seed black.

A variety named *Artichoke-leaved Cos Lettuce* is sometimes grown. This is very like the Oak-leaved variety, differing from it chiefly in the brown tint of its leaves.

Endive-leaved Cutting Lettuce.—Leaves spreading in a rosette, light-coloured, curled and crisped like those of the Small Green Curled Winter Endive. This variety is tender to eat, very hardy, and very good for cutting. It bears the winter well. The seed is black, and is the smallest of all kinds of Lettuce seed.

There is another variety which has a fuller heart, but the leaves are not so much curled, and are of a light grayish or silver hue. It is named the *English Endive-leaved Cutting Lettuce.*

There is an American variety of Cutting Lettuce which is very distinct from any of the preceding kinds, named the *Boston Curled Lettuce.* The leaves of this variety are of a light green colour, spreading into a rosette, and are cut, curled, and puckered at the edges like the leaves of a Curled Endive. It is a summer Lettuce and has black seed.

ASPARAGUS LETTUCE

Lactuca angustana, Hort.

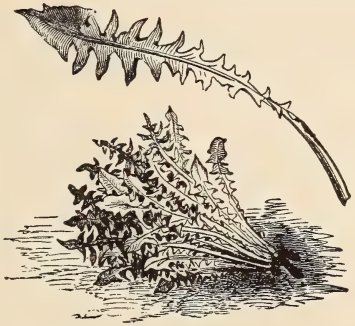
Leaves long, very narrow, lanceolate, never forming a head. The plant soon runs to seed, and it is the thick swollen stems that are used as a table vegetable, gathered when they are about a foot high. This plant is very distinct, and resembles no other Cos Lettuce. The *Lactuca cracoviensis,* Hort., is a form of the Asparagus Lettuce with reddish stems and bronzy leaves. It is grown and used in the same way as the common form. Notwithstanding their

very peculiar appearance and the Latin names which they have received from horticulturists, these two plants are nothing but modified forms of the cultivated Lettuce (*Lactuca sativa*, L.). The indications obtained from the flowers and seeds leave no doubt whatever on this point.

PERENNIAL LETTUCE

Lactuca perennis, L. *Compositæ.*

Native of Southern Europe.—This plant, which is common in the wild state on light or calcareous soils all over the central districts of France, has been highly spoken of as a vegetable for table use. The part eaten is the leaves, which are very much cut and form their rosettes in the early part of the spring. The plants are gathered where they grow (as Dandelion-plants are gathered in the meadows in various parts of France), but not in sufficient quantity to be sent to market. They do not make a bad salad, but the produce of the plant is so trifling that it is hardly worth cultivating. The seed is black, elongated, and small. Its germinating power lasts for three years.



Perennial Lettuce (⅛ natural size; detached leaf, ⅓ natural size).

LOVAGE, or LOVACHE

Levisticum officinale, Koch ; *Ligusticum Levisticum*, L. *Umbelliferæ.*

French, Ache de montagne. *German*, Liebstock. *Spanish*, Apio de monte.

Native of Southern Europe.—Perennial.—A very tall plant with large, shining, dark green radical leaves, which are twice or thrice divided into pinnate segments, entire and wedge-shaped at the base and incised lobed in the upper part. Stem thick, hollow, erect, dividing at the top into opposite whorled branches ; flowers yellow, in umbels; seeds strongly aromatic, hollow and boat-shaped on one side, and convex on the other, with three prominent ribs. Their germinating power lasts for three years.

CULTURE.—The plant is propagated either from seed or by division of the roots. The seed is sown as soon as it is ripe—that is, about August. The young plants are planted out permanently, either in autumn or early in spring, in good deep, moist, well-manured soil. The division of the roots should be made in spring.

A plantation will last several years without requiring to be renewed. When growing, the plants are treated exactly like Angelica-plants.

USES.—At the present day Lovage is almost exclusively used in the manufacture of confectionery; formerly the leaf-stalks and bottom of the stems were eaten, blanched like Celery.

MAIZE, or INDIAN CORN

Zea Mays, L. *Gramineæ.*

French, Maïs sucré. *German*, Maïs. *Flemish* and *Dutch*, Turksche tarwe. *Italian*, Grano turco. *Spanish*, Maïz. *Portuguese*, Milho.

Native of America.—Annual.—The Maize plant, or Indian Corn, was introduced in the sixteenth century from America into Europe, where its cultivation soon became very general, and where it now occupies an important place among the cereal crops which furnish food for man. In many places the heads or "cobs" are gathered while the seeds are young and tender, and are parched and eaten as a delicacy, but it is almost exclusively in the United States of America that the Maize is regarded as a regular table vegetable and grown specially for that purpose. Almost all the varieties may be eaten as they are in America—that is, boiled before the seeds have become hard and floury, and while the pulp of the interior is still in the condition of a soft paste; but there are some kinds which are superior to the rest for this purpose, their seeds being sweeter and more tender, and which are known by the general name of Wrinkled Sweet Maize. These are distinguished by the very peculiar appearance of the seed, the skin of which is wrinkled, shrunken, and almost transparent when ripe, instead of being hard, swollen, and smooth, like that of other kinds. Its germinating power lasts for two years.

Maize, or Indian Corn ($\frac{1}{8}$ natural size).

In the United States, where this plant is highly esteemed as a table vegetable, there are at least a dozen distinct varieties grown,

differing from one another chiefly in size and earliness. Most of these have white seed. The best varieties are :—

Extra Early Dwarf.—This is one of the best for cultivation in Central Europe.

Early Minnesota.—A very early kind, growing from 3 to 4 ft. high.

The **Early Crosby** and the **Large Early Eight-rowed.**—These are somewhat larger kinds than the preceding one, with a longer head, but about ten days later.

Concord.—A stronger growing kind, of excellent quality.

Stowell's Evergreen Late.—A later kind, but a good bearer, and keeping the heads tender and delicate for a longer time.

Besides these may be mentioned the *Early Narraganset Dwarf*, the ripe seeds of which are red, and the *Sweet Mexican*, which has black seeds.

CULTURE.—The Maize is sown in the open air about the same time as Kidney Beans—that is, as soon as the ground has become somewhat warmed, and there is no longer any danger of frost. All the attention it requires is the occasional use of the hoe when the plants are commencing to grow, and occasional waterings when they have become pretty strong. The earliest kinds sometimes yield a few well-grown heads about the end of July, and heads may be had somewhat earlier, if a sowing is made in a hot-bed and the young plants put out in the open ground about May 25th. By making successional sowings, and employing varieties of different degrees of earliness, fresh heads may be had up to the arrival of the first frosts.

USES.—The head or "cob" is boiled and served up, either entire, or the seeds are taken off and served up like Kidney Beans. The heads are also gathered when very young and small and before the flower opens, and are pickled in vinegar like Gherkins.

CURLED, or CURLED-LEAVED, MALLOW

Malva crispa, L. *Malvaceæ.*

French, Mauve frisée. *German*, Krausblättrige Malve. *Italian*, Malva crespa.

Native of the East.—Annual.—A large plant, with an erect, simple, or slightly branched stem, 4 to over 6 ft. high, and leafy to the top. Leaves large, round, light green in colour, very elegantly curled and puckered at the edges; flowers white, small, in long leafy terminal clusters; seeds brown,

Curled Mallow.

kidney-shaped, with a rough and irregular surface. Their germinating power lasts for five years. The seed is sown in April, either where the plants are to stand or in a seed-bed, from which the young plants are transplanted when they are from 2 to 4 in. high. They require no particular attention. When this plant is once grown in a garden it generally continues to reproduce itself from self-sown seed. No part of the plant is eaten, but the leaves are sometimes used for garnishing desserts, etc., and a few plants may be worth having in the kitchen-garden.

JEWS' MALLOW

Corchorus olitorius, L. *Tiliaceæ.*

French, Corette potagère. *German*, Gemüse-Corchorus, Nusskraut.

Native of Africa.—Annual.—Stem cylindrical, smooth, more or less branched at the base, and about 20 in. high; leaves alternate, broader near the base, narrowing for a considerable length to a point, and sharply toothed; flowers yellow, axillary; seed-vessels cylindrical, rather long, and smooth; seeds very angular, pointed, greenish, and very small. Their germinating power lasts for five years. As this plant is a native of a very warm country, it does not succeed very well in the climate of Paris. The seed is sown in the open ground, in a warm position, in May, or may be sown earlier in a hot-bed. The plant, however, is more valued in tropical countries, where it can be grown in the open air without any trouble. The leaves are used for salad while they are young and tender.

MARIGOLD (POT)

Calendula officinalis, L. *Compositæ.*

French, Souci des jardins. *German*, Ringelblume.

Native of Southern Europe.—Annual.—Leaves lanceolate, oblong, entire, rough, and of a rather gray-green; stems short, branching from the base, and bearing broad orange-coloured flower-heads; seeds gray, much wrinkled, covered with small round protuberances, almost spiny, and curved into the shape of a bow or ring. Their germinating power lasts for three years. The seed is sown where the plants are to stand, in March or April, in drills 14 to 16 in. apart, and the seedlings are thinned out to a distance of 10 to 12 in. from one another in the drills. The plants commence to flower in

Marigold (Pot) ($\frac{1}{20}$ natural size).

July, and continue to bloom all through the summer and far into autumn. The flowers are used in some culinary preparations, for which purpose they are gathered during the summer, dried in the shade, and kept until wanted. They are also used for colouring butter.

POT, or PERENNIAL, MARJORAM

Origanum vulgare, L. *Labiatæ*

French, Marjolaine vivace. *German*, Perennirender Englischer Majoran. *Flemish*, Orego. *Danish*, Merian.

Native of Europe.—Perennial.—This is a very common wild plant in France, especially on the borders of woods. It forms a branching tuft or clump, 20 in. to 2 ft. high, bearing terminal clusters of pink or lilac flowers. Seeds very small, oval, and of reddish or dark-brown colour. Their germinating power lasts for five years.

Pot, or Perennial, Marjoram ($\frac{1}{10}$ natural size; detached branch, natural size).

CULTURE.—This is a very hardy plant, and will grow in almost any kind of soil, so that it is as easily cultivated as Thyme. The seed is sown in spring or in autumn, in drills, or to form edgings, which will last for many years without requiring any attention.

USES.—The leaves are used for seasoning.

There is a variety which has short erect stems, bearing large clusters of almost white flowers, and forming a very compact tuft not more than from 12 to 14 in. high. This kind, which is named *Dwarf Pot Marjoram*, is especially adapted for forming edgings, and always comes true from seed.

Some unscrupulous seedsmen of the South of France sell under the name of Perennial Marjoram the seed of *Calamintha nepeta*, commonly known as Mountain Mint, which grows abundantly in Provence on hills and along the roads. The difference, however, is easy to recognise.

SWEET, or ANNUAL, MARJORAM

Origanum Majorana, L.; *Majorana hortensis*, Mœnch. *Labiatæ.*

French, Marjolaine à coquille. *German*. Majoran. *Flemish* and *Dutch*, Marjolijn. *Italian*, Maggiorana. *Spanish*, Mejorana. *Portuguese*, Manjerona.

Native of the East.—Perennial, but grown in gardens as an annual.—A plant with an erect, square, branching stem. Leaves opposite, roundish, of a grayish green colour; flowers small, whitish, in rounded clusters with spoon-shaped bracts; seeds small, roundish or slightly oblong, of a more or less dark brown colour. Their germinating power lasts for three years.

Sweet, or Annual, Marjoram ($\frac{1}{12}$ natural size; detached branch, natural size).

CULTURE. — The seed may be sown at the end of March or early in April. The plant springs up rapidly, so that the leaves may commence to be gathered in the course of May. The flowers appear about the end of June or early in July.

USES.—The leaves and the ends of the shoots are used for seasoning, for which they are highly esteemed, especially in the south of France.

MELON

Cucumis Melo, L. *Curcurbitaceæ.*

French, Melon. *German*, Melone. *Flemish* and *Dutch*, Meloen. *Italian*, Popone. *Spanish*, Melon. *Portuguese*, Melão.

Annual.—A native of the warm parts of Asia, and cultivated from a very remote period of antiquity, the Melon is not now certainly known to exist in the wild state, but it is supposed that the original or typical plant, if it is still to be found anywhere, must have an oblong fruit like that of the Persian Melon.

It is a plant with herbaceous, slender, flexible, almost cylindrical stems, furnished with tendrils, by means of which they attach themselves to surrounding objects, and climb when they meet with a suitable support; otherwise they creep along the ground. The leaves, leaf-stalks, and stems are rough, with short thick hairs,

which have almost the texture of true spines. The shape and size of the leaves are very variable, and there is no unvarying relation between the size of the leaves and that of the fruit in any one kind or variety. Most usually the leaves are kidney-shaped, rounded, and often folded or waved on the margin; frequently they are distinctly cut into three or five lobes, and sometimes the divisions even reach the depth of half the leaf; the margin is smooth and unbroken in some varieties, and toothed and spiny in others. The Melon is a monœcious plant; that is, male and female flowers, distinct from each other, are produced on the same plant. These flowers are rather small, and have a yellow corolla with five divisions and from $\frac{4}{5}$ to about $1\frac{3}{4}$ in. in diameter. The female flower is situated on the top of the ovary, which, in almost all the varieties, is ovoid, at the time when the flower expands, and is then about as big as a good-sized hazel-nut, at least. Insects, especially hive-bees and humble-bees, visit the flowers in great numbers, and are almost always effectual in ensuring their fertilisation; but when the plants are forced, or when it is desired to preserve a certain variety free from any intermixture with others, it is better to fertilise the flowers artificially, by applying the pollen with a camel-hair pencil, or direct from the male flower stripped of its corolla. The fruit exhibits so much diversity of shape, size, and colour, that it is difficult to give any general description of it. It is met with under a variety of round, flat, and elongated shapes, ranging from the form of a Pumpkin to that of a Cucumber. The colour is equally diversified, from white to black, and passes through every shade of green and yellow, not to mention variegations of all kinds. The skin is often marked with wrinkles or creases, which become, as it where, corky, and stand out in bold relief on the surface. The fruit in this case is termed "netted," or "net-veined." In other instances the fruit is covered with protuberances, more or less large and prominent, and known as "scabs" or "warts." Lastly, the skin of the fruit is sometimes perfectly smooth, and sometimes marked by a number of furrows, extending from the stalk to the eye of the fruit. These furrows have between them a certain number of ribs, usually from nine to twelve, which are more or less prominent, according to the variety. The seeds, which are smooth, usually white or yellowish, flat and oblong, are collected together in the centre of the fruit, and surrounded by a very watery pulp, full of soft filaments, which are the umbilical cords of the seeds. The flesh, properly so called, of the fruit is always watery, sweet, and usually highly perfumed; its colour is green, white, or orange. The relation between the size of the fruit and that of the seed is not always constant. The germinating power of the seed lasts for five years at least, and often for more than ten years.

CULTURE.—Melons, like most other plants of the same natural family, require good soil, in order to grow well and produce fine fruit. They do not succeed well in the open air, except in very rich alluvial soil, or in ground that has been abundantly manured. All through the north of Europe they are only grown in the open air in exceptional cases, and, as a rule, are cultivated exclusively under glass. We shall, therefore, dwell more particularly upon this mode of culture.

The Melon requires for its growth a moderately high temperature. This should almost always exceed 54° Fahrenheit; and the quality of the fruit is always better if the mean temperature is kept raised while they are ripening. Under the most favourable conditions, the plant requires four or five months to complete its growth, from which it may be seen that in the climate of Paris there is no positive certainty of ripening the fruit without the aid of artificial heat, and consequently they are almost always grown there in hot-beds. During nine or ten months of the year the market-gardeners about Paris have the plants under cultivation, and these furnish a supply of ripe fruit for six full months. The frames of Melon-pits being lined with manure, the plants are, in a manner, forced, as they thus receive a greater amount of heat than they would in the open air. Custom, however, has restricted the meaning of "forcing," in the case of Melons, to this mode of culture when commenced in January with the object of obtaining ripe fruit in May, while an "early" crop is that which ripens in June and early in July, and Melons "of the season," or the general crop, are those which are gathered from the end of July up to October. The details of the mode of culture are not exactly the same for these three periods, nor are the same varieties of plants grown in succession.

FORCING.—Melon-forcing commences, as we have just said, in January, and the kinds usually forced at Paris are the Prescott Small Early Frame and the Early Black Rock Melon. The seed is sown on a warm hot-bed during the month of January, and the fourth week after sowing the young plants are pricked out into another hot-bed, from twenty-eight to thirty plants under each light. During the whole of this early period of their growth the plants require continual attention in giving them air as often as that can be done with safety, occasionally watering them from a fine rose, and especially in guarding against the condensation of too much moisture on the lower part of the lights. In March they are planted out on another hot-bed. Before doing so, they should be stopped; that is, the main stem should be cut above the second leaf. After they have taken root, two lateral branches are quickly produced, and these are allowed to grow until they have made eight or ten leaves each, when they are cut above the sixth leaf, and at

this time fresh branches are growing, which almost always bear fertile or female flowers. Various modes of stopping the plant have been suggested, all of which may be useful under certain circumstances, but the method which we have just described has been generally adopted in the neighbourhood of Paris, as the most simple and usually the most sure. There are two things which should not be lost sight of in growing Melons. One is, that vigorous, healthy, well-grown leaves are indispensable for the production of fine and good fruit. Care should therefore be taken to grow and maintain as many leaves as can find room in the portion of the frame where the plant is, without depriving one another of a due share of air and light. The other important point is, that it is almost always necessary to expedite the branching of the plants, in order to cause the fruit to set as soon as possible; for if the plant is allowed to follow its natural mode of growth, it may only commence to produce fertile or female flowers too late for the fruit to ripen properly. As soon as there are a few fruit set, the best of them, or that which, from its strength and position, promises the best growth, should be selected, and all the rest pinched off. In forcing Melons, only one fruit is left on each plant. The last thing to be done is to cut away any useless branches that may make their appearance, and to ensure the symmetrical growth of the fruit by raising it off the hot-bed on a tile or small board, turning it so that it may, as far as possible, rest on the part where it is united to the stalk. Melons forced in this way sometimes ripen in April, but cannot be expected to do so with certainty until May.

EARLY CROP.—For this, the seed should be sown in the course of February, up to the end of the month, and the plants are treated in the same way as those which have just been described as "forced," the same operations being simply repeated three or four weeks later. This is a more certain crop than the previous one, as there is less danger of frosty weather and a better supply of light. The same varieties are now sown, and also the *Cantaloup Prescott à Fond Blanc*, a kind which is somewhat larger and more esteemed at Paris than the other two varieties.

GENERAL CROP.—This crop is grown on by far the most extensive scale at Paris, and is one in which the market-gardeners excel. The seed is sown in the usual way in a hot-bed, and the plants are planted out during May in hot-beds, which are generally arranged in great numbers one before another, occupying a whole square, or section of a garden. The varieties generally grown are the Cantaloups *Prescott à Fond Blanc*, *Fond Gris*, and *Fond Blanc Argenté*; sometimes the Rock, or Algerian, Cantaloup, and (rarely now) the Common Melon (*Melon Maraîcher*). When the plants are well rooted, the lights are completely removed, sooner or later, according to the prevailing temperature, and thenceforward, until

the fruit ripens, the plants are grown entirely in the open air. The stopping, selection of the fruit, etc., are just the same as in the two previous seasons; however, the plants are generally allowed to push a little more, and two fruit are often grown on the same plant, but the second one is not started until the first is nearly full grown. In this way the remaining strength of the plant is turned to account without injuring the first fruit, which requires no further supply of nutriment to increase its size, and has only to ripen the quantity of matter which it has already assimilated.

OPEN-AIR CULTURE.—This method, which, as we have seen, is very little used in the north of France, is, in fact, only a simplification of what has just been described. The plants are raised in the same way in a hot-bed, and planted out in rows of holes containing a good forkful of manure, covered with mellow soil or compost. For the first few days they are protected with *cloches* or bell-glasses, or, in some places, with oiled paper or calico, supported by thin rods bent in the form of an arch. As soon as the weather becomes quite warm these coverings are removed, and the plants are grown on in the open air without any protection.

In gathering Melons, it is not necessary to wait until the fruit is perfectly ripe; for if they are gathered a few days before that time and kept in a dry, warm place, they will ripen there more or less speedily, according to the temperature. It is not always easy to know the exact time when a Melon ripens, as the indications vary with the species, and are often not very plain. In a great many varieties, when the fruit is near ripening, the stalk exhibits a number of cracks (often deep ones), as if the fruit were about to separate from the plant. In almost all kinds of Melons, ripeness is indicated by the softening of the part of the fruit which surrounds the eye, and which yields to the pressure of the finger. A change in the colour of the fruit to a more or less decided yellow tinge is also a sign of ripeness. When this change makes its appearance, the fruit may be gathered and kept for a few days in the fruit-room. Lastly, the perfume, which Melons commence to give out almost as soon as they have attained their full size, becomes stronger and more perceptible as they grow ripe; so that it is sometimes one and sometimes another of these indications, according to the variety, that must be taken as a guide in fixing upon the proper time for gathering the fruit.

Strictly speaking, Melons are fruits, and among the best, but in the Paris market-gardens they are commonly cultivated among the vegetable crops. It is also the custom to eat before dinner, or in the early part of it, the common Melon of the market with pepper and salt. With us the difference in the kinds and the great difficulty of the culture make our garden Melons among our very choicest "dessert" fruit. Slight though the distance be between North France and London,

it is sufficient to cause a considerable difference in Melon culture, and as this book is mainly intended for English use, we give here an account of the English culture. There are various methods of Melon culture in England, more especially since it has become the rule to devote a house or houses to their production, and an interesting modification of the common practice is suggested by Mr. Iggulden in the *Garden*:—

"Where they are grown principally in frames, certain rules have of necessity to be followed, but in houses the case is very different. Much of this variance in practice may be due to the construction of the houses. As a rule, I believe that the majority of Melon-growers have a fixed routine from which they do not deviate any more than they can avoid, let the conveniences be what they may. Some prefer to cultivate Melons in large pots, not only the earliest, but also throughout the season. Others there are who plant in mounds of soil placed on a slate staging or iron gratings not far from the hot-water pipes, some of the latter, perhaps, being enclosed to afford bottom-heat; while many more, probably the majority of cultivators, make a good hot-bed with fermenting material, and on this place a continuous ridge of soil in which to start the plants. If all plans were alike successful, there would be no necessity nor room for criticism, but, as it happens, the reverse is the case, and really good fruits are by no means plentiful. Let those who doubt the truth of this assertion taste all the fruits in a well-filled Melon class at any exhibition, and after that probably they will change their opinion. Several reasons for Melon failures may be given, foremost among which should be placed premature ripening; this may be brought about either by the drying process or by the actual collapse of the plant. The fruits may be well coloured and otherwise tempting enough, but unless they are cut from a healthy plant they are certain to be unfit to eat. If we treat Melons much as we should some species of Orchids, that is to say, almost stew them at one time and bake them at another, we ought to expect failure. Treat Melons as Cucumbers are generally treated, and not only will they yield a succession of crops, but the fruits will be certain to be good. One set of plants may be easily made to perfect three crops of fruit, or I might say a continuous crop, and the last fruits to ripen may be as fine, both as regards size and quality, as the first. Two, or maybe three or four, Cucumber-plants are by many good cultivators considered ample for an average-sized house, and a similar number of Melons is also quite enough. Instead of this, we oftener see them planted 2 ft. and even less distances apart, and confusion is not unfrequently the consequence. If the cultivator is fortunate enough to set the first four fertile flowers, or, at any rate, a fair crop on the laterals thrown out by the main stem, the result may be satisfactory enough, but should he miss the chance it is very doubtful if another good one will offer. In the case of the plants allowed to extend freely and naturally, these will be constantly developing healthy, fertile, and easily set blossoms. Melons grown like Cucumbers, and in a house with them if need be, will be continually gaining strength, and, almost incredible as it may appear to some, will set fruit naturally and at different times. Instead, therefore, of a glut we may secure a succession from the same plant, and

this is one strong recommendation in favour of the practice which I recommend. True, these liberally treated plants are apt to produce rather large fruit, which for market purposes especially are not desirable, but this difficulty may be obviated, and need not deter any one from adopting the plan.

"Bottom-heat. — Many cultivators lay much stress upon the necessity for bottom-heat, this being afforded either by fermenting material or enclosed hot-water pipes, or the two combined. I shall try to prove that not only are these not absolutely necessary, but they are also not unfrequently a source of danger and a cause of failure. At the outset a bed of heating material composed, say, of stable manure and leaves, will give the plants an excellent start, and they will be apparently altogether superior to those started without such bottom-heat. All the while the heat lasts and the material is still in good condition the progress is satisfactory, but when the mass of material is decayed and gets sodden with moisture the temperature is materially lowered, and other evils follow. When the plants stand in most need of assistance, viz. when heavy crops are being matured, they get much less than at the earlier stages. A collapse is frequently the consequence, and the plants are either necessarily "dried off," or the fruits are cut and placed on hot shelves to colour or ripen where the bottom-heat is principally afforded by enclosed pipes; these, with the assistance, perhaps, of a small bed of heating material, answer very well for a time, but later on the material in contact with the gratings or slates, as the case may be, becomes very dry and non-conducting — the bottom-heat thus being wasted. This is by no means an imaginary case, as I have several times opened the chambers formed over hot-water pipes in order, if possible, to discover why we obtained insufficient bottom-heat, and they have proved unbearably hot. Then, again, unless the valves are so regulated as to admit of all the heat being turned on to the bottom-heat, the chances are that during warm weather they are not heated at all. In this case the difference between the top and bottom-heat may be much too divergent for the well-being of the plant. A healthy root-action should be maintained as long as possible, and the bottom-heat should be equal to the top-heat. Without at present going into details, I may state that our Melons are planted in raised square mounds of soil enclosed by loose bricks. The bottom-heat is not enclosed or concentrated in any way on the mounds, but these being well exposed share more or less in the fluctuations of the top-heat. This plan entails more labour in the shape of very frequent waterings, varied with liquid manure, and the progress at the outset is rather slow, but in the end the stems become strong and woody, and it rarely happens that they fail.

"Soil.—It may be a difficult matter for some to completely change their practice, even if they are disposed to do so, but there is nothing to prevent a modification, especially with regard to the disposition of the soil. Many seem to think that the poorest and heaviest loam procurable is the correct compost for Melons, this being placed in a rounded ridge on the top of the hot-bed and heavily beaten down in that position. In this case the loam has but little to do with an ultimate success, but may be partly blamed for a failure. It cannot be kept properly moistened, and the consequence is the roots quickly leave it and find their way

down into the too rich manure underneath. Given a square ridge of fairly stiff turfy loam, made tolerably firm (this will render watering an easy matter), and occasional slight top-dressings with good soil to which has been added a sprinkling of manure, and no difficulty will be experienced in maintaining a healthy surface root action. The best varieties to cultivate ought in every case to depend upon circumstances—whether green-fleshed or scarlet-fleshed, large, medium, or small, ought to be settled in accordance with what may be required. Some think the exigencies of the case are met by growing as many varieties as there are plants; but this, although an interesting experiment, is far from being politic. At the present time I have seeds of upwards of twenty varieties in a seed-drawer, but of these only three varieties will be grown, and one of these only by way of experiment."

USES.—The fruit are eaten raw. In the south of France, some white-fleshed or green-fleshed kinds are preserved, or made into jam. The young fruit which are pinched off may be eaten like young Gourds or Cucumbers, or may be pickled in vinegar, like Gherkins.

There are numerous classifications of Melons. Of these we shall follow the simplest and most common one, which divides them into the two groups of the Netted and the Cantaloup or Scabby-skinned Melons.

I. NETTED MELONS

French, Melons brodés. *German*, Netz-Melone. *Italian*, Popone primaticcio. *Spanish*, Melon escrito.

Red-fleshed Pine-apple Melon.—A vigorous, branching plant, with medium-sized or small, entire, rounded leaves, of a slightly glaucous green colour. Fruit very long stalked, with slightly marked ribs, and a delicate green colour, very plentifully dotted with black-green; the furrows between the ribs are very shallow and of a clear green colour, and the ribs themselves are slightly netted when the fruit is quite ripe; rind thin. The fruit is from about 3 to 4 in. in diameter, and weighs from about ten ounces and a half to over one pound. The flesh is red, rather firm, sweet, juicy, and highly perfumed. In this variety the central cavity seldom exceeds the size of a walnut.

Red-fleshed Pine-apple Melon ($\frac{1}{5}$ natural size).

Green-fleshed Pine-apple, or **Jersey Green Citron, Melon.**—The principal difference between this and the preceding variety is in the colour of the flesh, which is of a pale green, with a yellow tinge in the vicinity of the seeds; the leaves also are somewhat larger and lighter coloured. The plant continues growing for a longer time, and the skin of the fruit

is rather more netted when ripe. Both this and the preceding kind will readily carry and ripen from six to eight fruit on each plant.

Green Climbing Melon.—A vigorous, branching plant, with long slender stems. Leaves dark green, sometimes five-lobed, especially those near the ends of the stems; fruit oblong, with ribs faintly marked, deep green in colour, slightly dotted with pale green, 4 or 5 in. long and 3 or 4 in. in diameter, and weighing from about one pound to one pound and a half; flesh green, very melting, exceedingly juicy and sweet, with an agreeable perfume, although not so delicate as that of the Cantaloup Melons. It cannot be said that this variety requires a different mode of culture from that which is commonly employed for the other varieties of Netted Melons; yet its earliness renders it more suitable for growing in the open air than most other kinds, and the small size of the fruit allows of the stems being grown on a slight trellis, which would be impossible in the case of a large heavy-fruited variety. By planting it in pockets filled with manure covered with good soil, it may be easily brought to climb on espalier stakes, or even on a wall, if it has something to which it can attach itself. When grown in this way, the fruit ripens quicker and better.

Green Climbing Melon (⅛ natural size).

Some other kinds of Melon might be grown in the same way. The American Pine-apple Melons, which have very long and branching stems, are particularly well adapted for growing on trellises. The kinds that succeed the best in this way are those which grow rapidly and ripen early, and the fruit of which does not require the artificial heat of a hot-bed along with the natural heat of the sun to render it very sweet.

Golden Perfection Melon.—Fairly vigorous in growth, not straggling, with rather thin stems and leaves of a pale gray-green.

The fruit is spherical in shape, 4 to 5 in. or so in diameter, and usually not more than two to four pounds in weight. The skin is at first smooth and dull white, turning to yellow as the fruit ripens, becoming covered also with a thin network of slender lines crossed at right angles. The flesh is pale green, luscious, sugary, and perfumed. An early, rather delicate variety, only succeeding about Paris when grown under glass.

Golden Perfection Melon.

Tours Netted Sugar Melon.—This is a rather variable kind, having several sub-varieties which differ from one another in the shape of the fruit. One form of it is often met with, of which the fruit is oblong; but the best form appears to be that which we are about to describe. This is a vigorous plant, of medium size, and rather branching. Leaves large, entire or not very deeply lobed, slightly folded at the edges, and a rather vivid green colour; fruit spherical, about 6 in. in diameter, devoid of ribs or having them very faintly marked, and completely covered with very coarse, broad, and prominent tracings, crossing one another at right angles and surrounding the fruit like a network of cords; flesh orange-red, thick, firm, and generally very good. The fruit ripens half-late. A plant may carry three fruit.

Tours Netted Sugar Melon.

Paris Market-Garden Melon ($\frac{1}{5}$ natural size).

Round Netted Paris Market-Garden Melon.—A branching, vigorous plant, with numerous rounded light green leaves, slightly

toothed on the margin. Fruit nearly spherical or more or less flattened at the ends, entirely without ribs, and very uniformly covered with regular and very fine tracings, forming a very close network which completely hides the natural colour of the skin; flesh orange colour, thick, and firm. The fruit is about 8 or 10 in. in diameter, and weighs, on an average, from four and a half to six and three-quarter pounds. A well-grown plant may carry two fruit.

The *Saint-Laud Market-Garden Melon* and the *Mazé Market-Garden Melon* (from the neighbourhood of Angers) are somewhat like the preceding kind, but differ from it in being oblong in shape, having the ribs rather well marked and the skin more coarsely netted. The flesh is orange-coloured, firm, and usually very sweet.

Saint-Laud Market-Garden Melon ($\frac{1}{5}$ natural size).

Nutmeg Melon ($\frac{1}{5}$ natural size).

Nutmeg Melon.—A medium-sized, branching plant. Leaves largish, waved at the edges, and of a rather dark, wan green colour; fruit oval, almost pear-shaped, narrowed to a point at the stalk end and bluntly rounded at the other; skin dark green, almost black, marked with whitish tracings forming a rather loose network. The length of the fruit varies from about 6 to 8 in., and the diameter from 4 to about 6 in. The average weight is about two pounds and a quarter. Flesh green, not very thick, but juicy, sweet, and highly perfumed. This is a hardy and easily grown kind, ripening half-late. Three fruit may be left on each plant.

Honfleur Melon.—A very vigorous-growing plant, with very branching, long, and slender stems. Leaves large and luxuriant, folded and waved at the edges, light green in colour, usually distinctly lobed, and toothed on the entire margin, and especially so towards the extremity. The plant continues to flower for an exceedingly

lengthened period, producing blooms in succession on the branches, even after the fruit which set first have almost attained their full size. Fruit very large, long, with well-marked ribs, finely netted all over, and becoming a yellow, slightly salmon, colour when ripe; flesh orange-coloured and thick. The fruit is sometimes 14 to 16 in. long and 8 to 10 in. in diameter. When it is well grown, the quality is often excellent. It ripens half-late.

Very Large Netted Honfleur Melon.

This and the Black Rock Melon are the largest of all the Melons in cultivation, the Honfleur being equally remarkable for its great hardiness.

Hybrid Vallerand Melon. — A vigorous, branching plant of quick growth, a cross between the Green Climbing Melon and the Large Rock Prescott Cantaloup Melon. The leaves are dark green, only slightly cut. The fruit is a long oval, and slighly ribbed, weighing about four pounds. The skin is dark green, with only a few markings. The flesh is a dark orange-red, thick, firm, juicy, and fragrant. It is a disease-resisting and good keeping variety, also early.

Red-fleshed Cavaillon Melon (⅛ natural size).

Red-fleshed Cavaillon Melon.—A large vigorous-growing plant, with large grayish green leaves which have distinctly marked and very rounded lobes. Fruit oblong, sometimes almost spherical, blunt at both ends, and with well-marked ribs. When ripe, the skin is orange-coloured, and is broadly and densely netted, resembling the Tours Sugar Melon in this respect. The furrows between the ribs are very narrow, and, when the fruit is ripe, become reduced to mere lines. The stalk of the fruit is remarkably thick and strong. The flesh is a bright red colour,

thick, a little coarse, juicy, and of a high vinous flavour. The fruit ripens slowly. This variety is hardy, and is grown in the open air in the south of France, almost without any attention. The fruit has a tendency to become modified in shape, and, at the present day, is more elongated than it was twenty-five years ago. The district about Cavaillon is one of the great centres of Melon-growing in the south of France, and there are many distinct varieties in cultivation there, so that the name "*Cavaillon* Melon" is rather an indication of the place in which the fruit has been raised than a true specific name. The variety which we have just described is at the present time far less commonly grown in its native district than the various forms of Malta Winter, and especially of Malta Summer Melons, such as the following:

Green-fleshed Cavaillon or Malta Summer Melon.—A vigorous-growing plant, with very long stems. Leaves broad, rounded, toothed on their entire margin, and of a palish green colour. Fruit oblong, 5 or 6 in. in diameter, and 9 or 10 in. in length; skin smooth, of a dark green colour, thinly and loosely netted when ripe; flesh pale green, rather firm, but very juicy, sweet, and perfumed in warm climates; seldom good, however, in the climate of Paris.

Ribbed Cavaillon Red-fleshed Melon.—The Ribbed Cavaillon Melon differs from the Red-fleshed kind in having well-marked ribs. It is a vigorous plant, with leaves entire and vivid green. The fruit is spherical and ribbed; the skin silvery white, much netted, and the stalk thick and swollen. The flesh is pale red, firm, perfumed, and sugary. Does not ripen well in the vicinity of Paris.

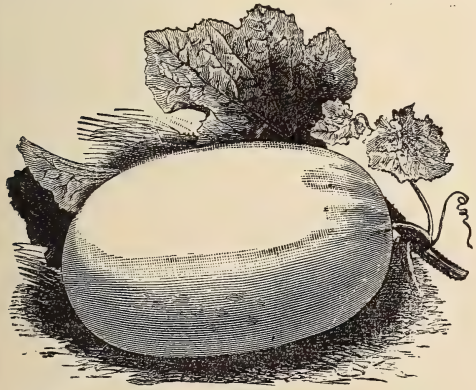
Ribbed Cavaillon Green-fleshed Melon.—Distinguished from the preceding by its fruit, which is oblong in shape and less netted. The flesh is green, juicy, perfumed, and very sugary. It needs much heat to ripen, and is at its best in the south of France. Of all the netted sorts, it is the one most grown around Cavaillon, whence it is distributed throughout the southern region. The Cavaillon Melons are largely used in the south for various kinds of preserves.

Red-fleshed Malta Winter Melon.—A plant of moderate vigour, with slender and very branching stems. Leaves slight, gray-green, usually entire, but slightly twisted at the margin; fruit oblong, blunt at both ends, only about one-fourth or one-third longer than broad, seldom exceeding 9 or 10 in. in length, and weighing from three and a quarter to four and a half pounds. The ribs are marked, but not very prominently, the furrows between them being a gray-green, and the top of the ribs pale green spotted with dark green, and covered, when ripe, with very short, almost entirely longitudinal tracings. The fruit-stalk is inclined to be

long and very slender for the size of the fruit. Flesh red, rather thick, juicy, very sweet, and musky. If the fruit is gathered before the proper time, it remains firm and almost hard. This variety succeeds well in the open air, but requires a southern climate to grow it to perfection.

Red-fleshed Malta Winter Melon.

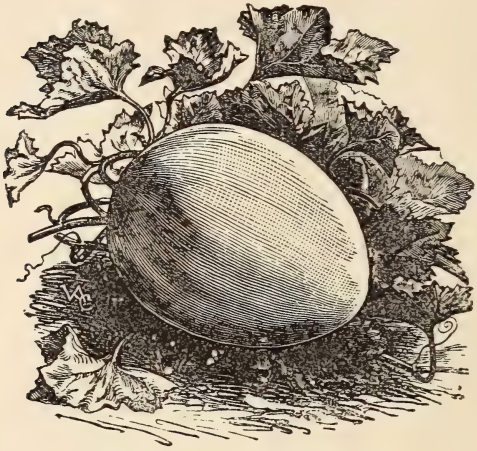
Green-fleshed Malta Winter Melon.—A vigorous-growing plant, with long trailing stems and numerous long branches. Leaves erect, dark and rather dull green, rounded and bluntly toothed; leaf-stalks very stiff. The leaves are usually not large, and remain rolled up, in the shape of a funnel. Fruit oblong, rounded, blunt at both ends, and particularly so at the end farthest from the stalk; skin white, tinged with green, entirely smooth, or with a few tracings on the pair next the stalk. The fruit is from 7 to 9 in. long, and 5 or 6 in. in diameter, and weighs from three and a quarter to four and a half pounds. A plant may carry two or three fruit. In the south of France this variety is very much grown for a late autumn crop. The fruit gathered at that time are kept in a fruit-room for winter use. They are also preserved in sugar or converted into jam.



Green-fleshed Malta Winter Melon ($\frac{1}{8}$ natural size).

Olive Winter Melon.—Much grown in the south of Europe and in Algeria; its merits are much the same as those of the other Winter Melons. It is one of those exported to northern cities late in the autumn. The fruit is oblong, tapering at both

ends; the skin smooth, dark green, more or less bronzed at maturity, and sometimes irregularly furrowed, but not ribbed. The flesh is red, fairly thick, very sweet, juicy, and of true Melon flavour.



Antibes Winter Green-fleshed Melon.

Antibes Green-fleshed Melon.—A vigorous, branching, trailing plant, differing from most of the other varieties by its light gray, much-folded leaf, which makes it appear more deeply lobed than it is. The fruit bluntly oval and dull white, and smooth when ripe. The flesh is green, very sweet and juicy, and very fresh and agreeable in taste. It grows best on the coast of Provence. Gathered fully ripe in October, it keeps perfectly until the month of February, and furnishes a very welcome dessert during winter. In the climate of Paris it is not at its best, nor does it keep well.

Other Varieties of Netted Melons.

Melon Blanc de Russie.—Fruit small and round, without ribs; skin smooth, and entirely white; flesh white, with not much flavour.

Melon Blanc à Chair Verte.—A very distinct kind. Fruit medium-sized, very much flattened at the ends, and weighing from two to three pounds; skin white, smooth; ribs well marked; flesh very thick, excellent in quality, and green throughout.

Melon Boulet de Canon.—A small and rather early variety, with spherical fruit 5 or 6 in. in diameter; skin smooth, green, marked here and there with a few fine tracings; flesh pale green.

Melon de Cassaba, or **de la Casba.**—This kind, which is in high repute in the East, appears to require a warm climate to bring it to perfection. In appearance it is like the Green-fleshed Malta Summer Melon.

Cyprus Melon.—Fruit oblong, with ribs faintly marked, of a grayish white colour, very slightly netted, the furrows being of a dark green; flesh orange-coloured, firm, very thick, and high flavoured.

Composite Melon.—Fruit oblong, with prominent ribs and a thin rind, dark green in colour, almost entirely covered with network of medium thickness; flesh red, firm, sweet, and well tasted.

Melon de Coulommiers.—Fruit large, oblong, with tolerably well-marked ribs, and very like the Honfleur Melon, of which it appears to be a sub-variety. A rather late kind.

Melon d'Esclavonie. — A very distinct variety, with large fruit of a long oval shape, rounded at both ends, and with a white, smooth, and rather thick skin; flesh nearly white, sweet, but insipid.

Melon de Langeais.—A variety of the Paris Market Garden Melon, with oblong fruit, almost twice as long as broad; ribs pretty well marked and very much netted, furrows smooth; skin thin; flesh red, watery, and rather insipid. Ripens half-late.

Moscatello Melon (⅕ natural size).

Moscatello Melon.—Fruit very long, and almost pointed at both ends; ribs rather well marked, of a pale gray or silvery green, and very seldom netted; flesh red, very juicy, and highly perfumed.

Persian, or Odessa, Melon (⅕ natural size).

Persian, or Odessa, Melon.—A rather vigorous plant, with long and somewhat slender stems. The fruit is devoid of ribs, very much elongated, and narrowed to a point at both ends, especially at the stalk ends; skin smooth, very dark green, with yellow bands, themselves spotted or striped with green; flesh very thick, almost without any rind and almost entirely filling the fruit, rather firm, but very finely flavoured, juicy, sweet, and highly perfumed. This Melon requires a great deal of heat, and seldom ripens very well in northern countries.

In Persia and Turkestan there is a great number of varieties of Melons which are highly esteemed for their quality in those countries, and of which travellers speak in terms of admiration. The climate must have a great deal to do with this, as the very same kinds, when grown in France, are

always inferior to the French varieties, both in quality and especially in the certainty of the crop.

Quito Melon.—Fruit small, oblong, scarcely larger than a hen's egg, and citron-coloured when ripe ; flesh white and acidulous.

Siam Netted Melon.—Fruit nearly spherical, rather small ; ribs tolerably well marked and dark green, almost black in the furrows, and covered with close coarse network ; flesh red.

Siam Netted Melon.

Green-fleshed Sugar Melon (⅛ natural size).

Green-fleshed Sugar Melon.—A vigorous plant, with long branching stems. Fruit oblong, narrowed at both ends, of a pale green colour, finely netted when ripe, and bearing some pointed protuberances ; ribs well marked, but not very prominent ; flesh of a pale green colour, exceedingly melting and sweet. The length of the fruit varies from about 9 to 11 in., with a diameter of 4 to 6 in. It usually weighs from about four and a half to six and a half pounds. Two, or even three, fruit may be grown on each plant.

Early Green Japanese Melon.—Fruit rather small, almost spherical ; ribs regular, not prominent ; skin nearly smooth, slightly downy, deep green, marked by a very few small tracings here and there ; flesh red, firm, and perfumed.

English and American Varieties

The English varieties of Netted Melons are very numerous. In this country Melons are mostly grown with the aid of artificial heat and more frequently as fruits than as vegetables. The varieties cultivated are generally rather small, and usually are round-fruited kinds with a very thin skin. Many of them do not succeed very well when grown in the open air.

I. *Red-fleshed Varieties*

Blenheim Orange Melon.—Fruit shortly oval, netted and thin skinned; flesh orange-coloured, rather thick, and very highly perfumed.

Christiana Melon.—An American variety. Fruit spherical, with a smooth dark green skin, hardly marked by a few very fine tracings; flesh red, very thick, and exceedingly fine flavoured and perfumed.

Crawley Paragon Melon.—Fruit very small, spherical, netted; flesh red, firm, tolerably like that of the Windsor Prize Melon.

Emerald Gem Melon.—Small, almost round fruit, slightly ribbed and netted, dark green and yellow when ripe; flesh very thick, salmon-red, juicy, and excellent in flavour.

Hero of Bath Melon.—Fruit small, round, netted; flesh red and firm; skin very thin.

Munroe's Little Heath Melon.—A very handsome and distinct little Melon, with slightly marked ribs flattened a little at the ends, and netted; flesh red, thick, nearly filling the fruit, juicy and sweet.

Osage, or **Miller's Cream, Melon.**—Late, medium-sized, oval, and dark green fruit. Resembles the Green Climbing Melon, but has red-coloured flesh.

Paul Rose, or **Petoskey, Melon.**—Short, oval in shape, pale green changing to yellow. Ribs and netting strongly marked; orange-red flesh, thick and sugary.

Read's Scarlet-flesh Melon.—Fruit medium-sized, round; skin dark green, netted; flesh scarlet, melting, sweet, and good.

Scarlet Gem Melon.—A pretty little fruit, almost spherical about the size of a large Orange, with a smooth gray skin covered with fine and rather close tracings; flesh red, juicy, sweet, and highly perfumed.

Windsor Prize Melon.—This appears to be only a sub-variety of the preceding kind, with still smaller fruit, but sweeter and more highly perfumed, if possible.

Surprise Musk Melon.—An American variety. This is a form of the Orange Cantaloup Melon, which has the fruit somewhat larger than that of the ordinary variety. It is slightly oblong in shape, and netted a little on the ribs; flesh orange-coloured and firm.

Victory of Bristol Melon.—Fruit quite spherical, something like that of the Tours Sugar Melon, but more finely netted; flesh orange-coloured, thick, sweet, and rather juicy. The skin is almost yellow when ripe.

II. *White-fleshed Varieties*

Bay View Musk Melon.—An American variety. Fruit oblong, olive-shaped; skin green, netted; flesh white, sweet, and not very thick.

Colston Bassett Seedling Melon.—Fruit slightly oblong, blunt at both ends; skin netted, yellow when ripe; flesh white, melting, very juicy, and very delicately perfumed.

Hero of Lockinge Melon.—Fruit medium-sized, rounded; skin bright yellow, netted; flesh almost white, very tender, melting, rich, and excellent. One of the best of Melons.

Longleat Perfection Melon.—Fruit large, rounded; smooth, greenish yellow skin; flesh white, very melting, juicy and high flavoured.

Queen Emma Melon.—Fruit rather large, almost round; skin thin; flesh white, very melting. A productive kind.

III. *Green-fleshed Varieties*

Bailey's Green-flesh Melon.—Fruit medium-sized, round ovate, smooth, greenish yellow; flesh green, very tender, sweet, and richly flavoured.

Baltimore, or **Acme, Melon.**—A climbing variety, rather more netted than our own variety.

Beechwood Melon.—Fruit oval, netted, yellow-green when ripe; flesh pale green, melting, sweet, and perfumed. Ripens half-late.

Davenham Early Melon.—Fruit small, spherical, with slightly marked closely netted ribs and smooth furrows. The flesh is green and very melting. It is very like the Green-fleshed Pine-apple Melon, but not so trailing.

Eastnor Castle Melon.—Fruit slightly oblong, nearly smooth, scarcely marked by a few tracings when ripe, and then becoming pale yellow, having been previously of a perfectly uniform dark green; flesh very tender, sometimes a little clammy. A productive kind.

Egyptian Green-flesh Melon.—Fruit rounded, blunt at both ends, slightly netted; skin gray or silvery; flesh sweet and perfumed.

Gilbert's Green-flesh Melon.—Fruit rather large, oval, yellow when ripe; flesh juicy and melting. A good and productive variety.

Gilbert's Improved Victory of Bath Melon.—Fruit rather large, shortly oval, not much netted, and with ribs slightly marked; flesh pale green, melting, and highly perfumed. This variety somewhat resembles the Green-fleshed Sugar Melon, but its fruit is not so large.

Golden Queen Melon.—A vigorous kind, probably a sub-variety of the preceding one, with somewhat larger and well-netted fruit; flesh firm, juicy, and highly flavoured.

Hackensack Melon.—This is a vigorous form of the Green-fleshed Pine-apple Melon, with spherical fruit.

Extra Early Hackensack Melon.—Much in request in New York markets, and about ten days earlier than the type.

High Cross Hybrid Melon.—Fruit medium-sized, spherical, and of a uniform white colour; flesh quite green, rather thick and melting.

Montreal Market Melon.—Very big, rather late, spherical or slightly oblong, the ribs well marked; skin dark green and netted all over; flesh light green and sugary.

Rocky Ford, or Netted Gem, Melon.—A late variety; fruit almost round or slightly oval, ribs not high; skin thin, netted, first green then a peculiar gray when ripe; flesh pale green and very sweet. One of the favourites of the American markets, and grown in large quantities in Colorado State.

Skillmann's Netted Melon.—A sub-variety of the Green-fleshed Pine-apple Melon, with fruit twice as large.

William Tillery Melon.—Fruit oval, with ribs very feebly marked; skin dark green, slightly netted when ripe; flesh very green, not very thick, quite melting and exceedingly sweet, but deficient in delicacy of flavour.

II. CANTALOUP, or ROCK MELONS

French, Melons cantaloups. *German*, Cantaloup-Melone. *Italian*, Zatta. *Spanish*, Meloncillo de Florencia.

The name of Cantaloup Melon is of Italian origin, and dates back several centuries. It is now used to denote those varieties of Melons with warty skins, which is supposed to have been the distinctive feature of the original Cantaloup Melon. In regard to certain varieties it is not always easy to draw a hard-and-fast line between the Cantaloup Melons and the Netted Melons.

Bellegarde Cantaloup Melon.

Bellegarde Cantaloup Melon.—A rather slender plant of vigorous and rapid growth; the leaves are light

gray-green, the fruit, which is rather long than round, measuring usually 4 to 6 in. in length by about 3 in. in diameter. It is only slightly ribbed and not very warty. It is easily recognised by the length and slenderness of the fruit-stem. The flesh is very thick, sugary, perfumed, and a fine deep orange. In earliness it is equal, if not superior, to the Early Black Rock Melon.

Vaucluse Cantaloup Melon.

Vaucluse Cantaloup Melon.—Plant of rather vigorous growth, with stems and leaves quite like those of a Cantaloup Melon. The leaves are slightly cut and rather dark green. The fruit is borne on a long stalk, is deeply ribbed, and remarkable for its very flattened shape, being little more than 2 in. deep, while it is often 6 in. in its transverse diameter. Its weight is more frequently under than over two pounds and a quarter. The skin is nearly smooth, and is marbled with dark green on a pale green ground. This little Melon is remarkable for its very great earliness, and is sent to the Paris markets in June and July from the department of Vaucluse.

Apple-shaped Cantaloup Melon.—A vigorous and productive plant. The leaves are large and rounded. The fruit are numerous, small, and round, measuring about 4 in. in diameter by about 3 in. in depth; it is very slightly ribbed. The skin is rough and dark green when ripe. The flesh is dark orange, thick, juicy, and sugary, filling almost entirely the seed cavity. It is a good Melon for small gardens, for its productiveness on a given surface is quite equal to that of the large-fruited sorts and is longer in point of time.

Apple-shaped Cantaloup Melon.

Prescott Early Frame Melon.—A medium-sized plant. Leaves broad, rounded or slightly angular, of a light gray-green colour, and almost always folded in the shape of a funnel ; fruit spherical, or slightly flattened at the ends, with the ribs marked, faintly warted, marbled with dark green on a pale green ground, and with the bottom of the furrows a uniform olive-green ; flesh orange-coloured, thick, juicy, and melting. The diameter of the fruit is from about 5 to 6 in., and its length (from stem to eye) from 4 to 5 in. Its weight ranges from twenty-six ounces to over two pounds. A plant should carry only one fruit for the early crop, and two for the general crop. This variety is remarkably early, and its quality is almost invariably excellent. It and the Early Black Rock Melon are the best two kinds for forcing under frames.

Prescott Early Frame Melon (⅓ natural size).

Early Black Rock, or Des Carmes Cantaloup, Melon (⅓ natural size).

Early Black Rock, or **Des Carmes Cantaloup, Melon.**—A medium-sized, rather branching plant. Leaves largish, of a dark, shining green colour, very distinctly five-lobed, folded at the edges, almost in the shape of a funnel ; leaf-stalk short and thick ; fruit nearly spherical, but slightly flattened at the ends, with ribs clearly but not very deeply marked ; skin usually smooth and without warts, of very dark green, almost black, turning to orange when ripe ; flesh orange-coloured, thick, sweet, perfumed, and of excellent quality. The diameter of the fruit varies from about 6 to 7 in., and its length (from stalk to eye) from about 5 to 6 in. ; it weighs from about two pounds and a quarter to three pounds and a half. A plant may carry two fruit for the general crop. This is one of the best and most easily grown of the early Melons.

Bomb-shaped Cantaloup Melon.—A very vigorous grower, with numerous leaves of vivid green, very much cut, especially when young. The fruit is oblong, narrowed at both ends, sometimes slightly netted or scaly, and a black-green when ripe. The skin is very thin ; the flesh dark orange, very tender and very juicy. Evidently sprung from the Black Rock or des Carmes Melon, which it resembles except in shape, it is very productive,

a plant producing three or four fruit, which ripen in succession up to September or October. It is suitable for frame as well as open culture.

Bomb-shaped Cantaloup Melon.

Sugar Cantaloup Melon.—A medium-sized, very branching, vigorous, and hardy variety. Leaves rather large, distinctly lobed, and dark gray-green; fruit nearly spherical, or slightly flattened at the ends, with ribs not very strongly marked, of a uniform silvery gray colour, not very distinguishable from the colour of the bottom of the furrows, which is a pale gray; flesh orange-coloured, very thick, sweet, juicy, and perfumed; skin remarkably thin. The diameter of the fruit is about 5 or 6 in., and the weight usually ranges from about 2 lb. 10 oz. to 3 lb. 13 oz. A plant may easily carry two fruit. This is one of the varieties which succeed the best in the open air.

Large Rock Prescott Cantaloup Melon.—A rather vigorous and branching plant. Leaves medium-sized, folded at the edges, often five-lobed, and a rather deep, light green; fruit large, and very much flattened at the ends; ribs broad, very much wrinkled, covered with knobs and protuberances of all shapes, and irregularly variegated with dark and pale green on a whitish ground. The ribs are separated by very deep, narrow furrows. Flesh orange-coloured, very thick, exceedingly fine flavoured, juicy, and melting. The skin also is thick, but owing to the shape of the fruit, that does not prevent the flesh from being very abundant. The length of the fruit, from the stalk to the eye, varies from about 5 to 6 in., and the diameter from 9 to 11 in., while the weight ranges from five and a half to nearly

Sugar Cantaloup Melon
($\frac{1}{8}$ natural size).

nine pounds. A plant is generally allowed to carry only one fruit, or, in rare cases, two.

Silvery Prescott Cantaloup Melon.—This variety only differs from the preceding one in the colour of the ribs being somewhat more metallic, and in the fruit being a little larger, but of the same quality. The two varieties are those which are the most extensively grown by the Paris market-gardeners, who supply them in abundance from July to the end of October. As the large Prescott Melons are grown to an enormous extent, new varieties of them are of frequent occurrence. Whenever a particularly good fruit possesses any exterior characteristic which distinguishes it, even in a slight degree, from others, the cultivators aim at reproducing this characteristic as indicative of the quality, and that is how a new variety is often established.

Large Rock Prescott Cantaloup Melon.

Parisian Cantaloup Melon.—A vigorous plant with short and branching stem and dark green leaves, moderately cut and lobed. The fruit is large, spherical, about 12 in. in diameter, the ribs being separated by well-marked but very shallow furrows. The skin is silvery white with sometimes dark green blotches or warts. It is very like the Silver-white Prescott Cantaloup Melon, the most important difference being in the depth of the flesh in comparison with that of the rind. It would be difficult to find a Melon possessing depth of flesh and thinness of rind in the same degree.

Silvery Prescott Cantaloup Melon.

Parisian Cantaloup Melon.

Vauriac Cantaloup Melon. — Evidently a selection from the Silver-skinned Prescott Cantaloup Melon, which it resembles in colour, but not in its thick, well-developed ribs, separated by deep furrows, and rough, sometimes scaly, skin. The flesh is a fine orange-red, deep, juicy, and of excellent quality. The fruit is large and heavy. The defect of this variety is the thickness of its skin, as compared with some newer varieties, especially the Parisian Cantaloup Melon. It ripens mid-season, and can be well grown in small gardens, as well as market-gardens.

Algerian Cantaloup Melon.—A rather dense-growing plant, with numerous short branches. Leaves dark green, slightly cut, and very much folded at the edges, which gives them the appearance of being five-lobed. They are almost turned round in the shape of a funnel, and are very variable in size, those on the lower parts of the stems being three or four times as large as those at the ends of the branches. Fruit slightly elongated, sometimes spherical, bearing embossed warts or scabs, which, as well as the bottoms of the furrows, are of a very dark green, almost black, colour,

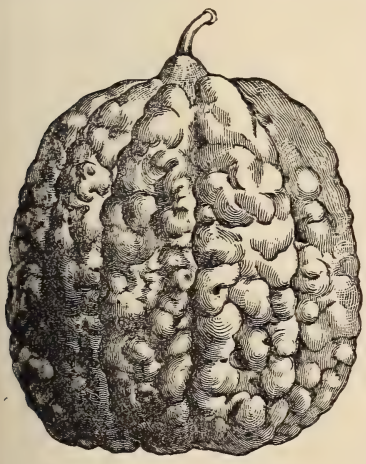
Vauriac Cantaloup Melon.

contrasting strongly with the light silvery hue of the other parts of the ribs. The dark green parts change to orange colour, but not fully until the fruit is over-ripe, so that it should be gathered before the change takes place. The length of the fruit varies from 6 to 10 in., and the diameter from about 5 to 8 in., the weight ranging from about four and a half to six and three-quarter pounds. A plant may carry two fruit.

Algerian Cantaloup Melon (⅓ natural size).

It is surprising that this Melon is not grown by the Paris market-gardeners, as it is one of the hardiest summer Melons, and surpasses all of them, perhaps, in uniform goodness of quality. The flesh is thick, juicy, perfumed, and always very sweet. Ripens half-late.

Green-fleshed Cantaloup Melon.—A medium-sized, branching, rather slender-stemmed plant. Leaves medium-sized or small, dark green, folded at the edges, and often rather deeply cut into five lobes ; fruit spherical, or slightly flattened at the ends, with faintly marked ribs, light green at the bottom of the furrows, and slightly warted on the convexity of the ribs, which are marbled with white and dark green. The length of the fruit varies from about 5 to 6 in., the diameter slightly exceeding those dimensions, and the weight ranging from about 2 lb. 10 oz. to 3 lb. 5 oz. A plant may carry two, and sometimes three, fruit. Flesh pale green, very thick, melting, juicy, sweet, and delicately perfumed. This is one of the finest flavoured of all the Cantaloup Melons.



Black Portugal, or Rock Cantaloup, Melon (⅓ natural size).

Black Portugal, or **Rock Cantaloup, Melon.**—A very vigorous, branching plant, with very large, soft, rounded, entire leaves, of a clear-green colour, more like the leaves of Netted Melon than those of a Cantaloup. Fruit very large, slightly oblong, very blunt, and almost flat at the end farthest from the stalk ; ribs deeply marked ; skin irregular, knobby, and marked with spots of very dark green on a lighter green ground ; stalk very long, and swollen

to a remarkable degree close to the fruit. The shape of the fruit is somewhat variable, the length sometimes exceeding the diameter, and sometimes the reverse. The extreme diameters range from about 10 to 12 in. and the fruit often weighs from eleven to thirteen pounds. A plant should not be allowed to carry more than one fruit.

The *Maron Melon*, which was mentioned some years ago, and which weighed, it is said, as much as twenty pounds, is a selection from the Black Portugal Melon.

Other Varieties of Cantaloup Melons

Archangel Cantaloup Melon.—A handsome, medium-sized variety. Fruit nearly spherical, or slightly flattened at the ends, with ribs faintly marked, and a gray-green, not very warty, skin, almost intermediate in appearance between the White Prescott and the Sugar Cantaloup Melon; flesh red, thick, juicy, sweet, and high flavoured.

Épinal Cantaloup Melon.—This appears to be a sub-variety of the Prescott Early Frame Melon, which it somewhat exceeds in size. The fruit is almost spherical, with ribs pretty well marked, and a pale green skin variegated with gray. Flesh red, and very thick.

Early English Cantaloup Melon.—This variety, which is now not much grown, is distinguished by its small size and great earliness. The fruit is slightly flattened at the ends, and does not exceed 4 or 5 in. in diameter. Flesh red, fine flavoured, and good.

Mogul Cantaloup Melon.—Fruit almost pear-shaped, twice as long as broad, with very prominent ribs; skin wrinkled, velvety, and covered with warts; flesh red and thick, but deficient in flavour. Ripens very late.

Orange Cantaloup Melon.

Black Dutch Cantaloup Melon.—Fruit very large, oblong, sometimes almost pear-shaped; ribs well marked, warty, of a dark green colour, almost black, more or less marbled with paler green; skin thick; flesh orange-red, comparatively scanty, and rather coarse. Ripens late.

Orange Cantaloup Melon.—A small oblong Melon, ribbed; with orange-coloured, firm, and not very thick flesh. Inferior in all respects to the Bellegarde Cantaloup Melon.

Passy Cantaloup Melon.—This Melon almost exactly resembles the Prescott Early Frame Melon in all the parts of the plant, differing clearly from it, however, in the fruit, which in the Passy Melon is smoother, more regularly spherical,

and considerably smaller. The skin is not warty, but simply spotted with darker green on a light green ground, especially on the parts of the fruit which are exposed to the sun. The fruit seldom exceeds 4 in., or a little more, in diameter, and the average weight is from one pound and a half to one pound and three-quarters at the most. The flesh is red, thick, sugary, and of a very uniformly good quality, even in fruit which ripen late in autumn.

Passy Cantaloup Melon.

C. Prescott à Écorce Mince. — A handsome variety, more spherical in shape than most of the Prescott Cantaloups commonly grown about Paris, and yet coming very near the Sugar Cantaloup, which is also distinguished by the thinness of the skin.

C. Prescott Cul de Singe.—In this variety the eye of the fruit is considerably enlarged, the part of the fruit around it being swollen in such a manner as to give the fruit something of the appearance of a Turk's-Cap Gourd. This peculiarity of shape being sometimes found to be accidentally accompanied with a remarkably good quality in the fruit, has caused it to be much sought after by some amateurs, but there is really no necessary connection between the two things, since quite as good fruit are found amongst the ordinary varieties of Prescott Melons. The peculiar shape, moreover, is not confined to this variety, as it occasionally occurs in the Sugar and other Cantaloup Melons, and even in the Netted Melons, and is never found to be accompanied with an invariable improvement of quality in any variety.

Sweet-scented, or Queen Anne's Pocket, Melon ($\frac{1}{15}$ natural size; fruit, $\frac{1}{5}$ natural size).

Queen Anne's Pocket Melon, or **Pomegranate Melon.**—A slender climbing plant of light foliage, the leaf more or less deeply

divided into five lobes. Fruit numerous, very small, depressed at the ends, unribbed, but marked with bands of green and yellow; flesh not thick, pale orange, and uneatable; seeds small and oval shaped. The scent of this fruit, which resembles that of other Melons, though less powerfully, is pleasant enough in the ripening fruit; but the flavour of the fruit does not correspond with the perfume, and its chief value as a plant is for covering trellises, etc. To this variety has been long ascribed the Peach Melon, a small, smooth, yellow fruit, scarcely worth eating when raw, but as a preserve recalling the flavour of the Peach to some palates; but it is rather referrable to the Quito Melon, already mentioned, if indeed the two are not identical.

WATER-MELON

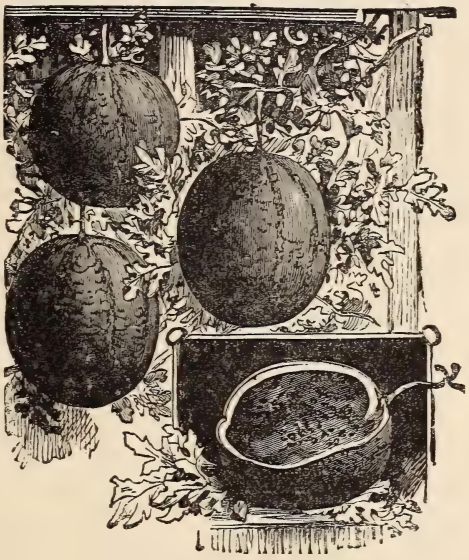
Citrullus vulgaris, Schrad.; *Cucumis Citrullus*, Ser.; *Cucurbita Citrullus*, L. *Cucurbitaceæ.*

French, Melon d'eau, Pastèque. *German*, Wasser-Melone. *Italian*, Cocomero. *Spanish*, Sandia. *Portuguese*, Melancia.

Native of Africa.—Annual.—The Water-Melon is a climbing plant with slender and very long stems, particularly suitable for warm climates, where the watery but insipid pulp of the fruit is considered very refreshing. The whole of the plant is covered with long, soft, grayish hairs. The leaves are rather large, and divided into numerous segments, which are also cut or lobed. All the divisions of the leaves, as well as the spaces between the divisions, are rounded in outline, which gives the foliage of the plant a very peculiar appearance. The flowers are rather like Melon-flowers; they are monœcious, and the female flowers are placed on the top of the ovoid and very hairy ovaries, which, as they grow, become changed into perfectly smooth, spherical, or oblong fruit. The colour of the fruit is sometimes a uniform more or less dark green, and sometimes variegated and marbled with grayish green on a darker ground. The fruit is filled with flesh or pulp, the colour of which varies from greenish white to dark red. The seeds are in longitudinal rows, and are flat, oval, short, and of various colours—white, yellow, red, brown, or black. Their germinating power lasts for six years. The varieties of Water-Melons are almost without number, the plant being very extensively cultivated in countries where little importance is attached to pureness of variety, and where different kinds may be seen growing and flowering side by side.

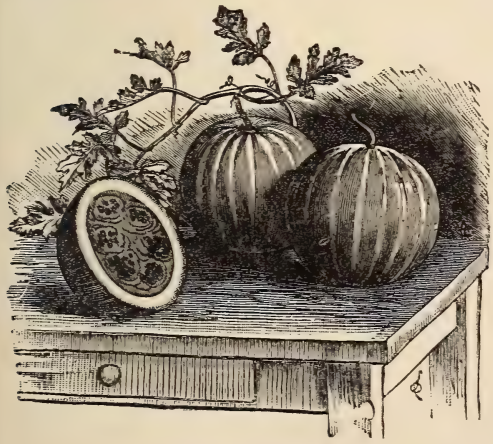
CULTURE.—The Water-Melon, being a native of warm countries, is not much grown in Europe, except on the shores of the Mediterranean and in the south of Russia, where it forms an important article of food. In all tropical countries it is one of the commonest

fruits, and is grown there, like the Melon, in the open air and without any trouble. In the climate of Paris it requires, like the Melon, the aid of artificial heat; but it is only grown there as a curiosity, the fruit being always insipid. The only difference in the culture of it from that of the Melon is, that the Water-Melon plants are never pinched or stopped, the produce being always better the more freely the stems are allowed to grow. We have never known it to be well grown in England.



Early Russian Water-Melon.

USES.—The ripe pulp of the fruit is eaten raw, like a Melon. Sometimes the fruit is sliced, and preserved either alone or mixed with other kinds of fruit. It is also made into jam. Before it has ripened, it may be boiled and eaten like a Vegetable Marrow. It is of great value in hot countries.

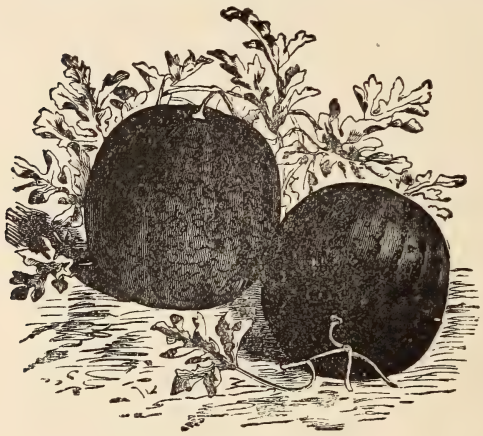


Early Rodosto Water-Melon.

Early Russian Water-Melon. — A vigorous plant, with olive-green fruit, weighing usually less than four pounds. It is the earliest of all Water-Melons, ripening in ordinary seasons as early as August. The flesh is melting and juicy. It is the best of all Water-Melons.

Very Early Rodosto Water-Melon (*Black-seeded*).—Not so early as the Seikon, it ripens well in the climate of Paris. A vigorous plant, with stems 10 ft. long, bearing many fruit of pale green colour, rather small, spherical, very slightly

flattened, with ribs faintly marked. The flesh is red, deep, juicy, very sugary, and of a very pleasant flavour. Grown on a hot-bed, it ripens in average seasons in the second half of August.



Seikon Water-Melon.

Very Early Seikon Water-Melon.—A variety introduced from Japan, of remarkable earliness, owing to which it ripens better in the climate of Paris than most Water-Melons, which, as grown in the north of France, are generally poor in flavour. It has a rather short stem, and deeply cut leaf, quite distinct, and wilting readily. The fruit is almost spherical, slightly flattened at the ends; the colour dark green, with sometimes faintly black streaks. The flesh is red, and the seeds are black.

Red-fleshed and Red-seeded Water-Melon.—A very early Water-Melon. The fruit is slightly oblong, olive-green, and about 7 or 8 in. in length, and about 4 in. in diameter, weighing two to four pounds. It is a productive and well-shaped variety from Provence, early enough to ripen well in the climate of Paris. The flesh is melting, very juicy, delicately perfumed, and a fine bright red.

Black-seeded Water-Melon.—Fruit oblong, 20 in. to 2 ft. long and 12 to 14 in. in diameter; skin smooth, dark green; flesh red, very melting, slightly sweet, and filling the whole of the fruit; seed varying from dark red to black. This variety is most usually eaten raw, and, along with its sub-varieties, is the kind most commonly grown on all the shores of the Mediterranean.

Black-seeded Water-Melon ($\frac{1}{5}$ natural size).

The *Helopa* Water-Melon is a vigorous plant, with very large, spherical, or slightly flattened fruit; skin thin, pale green, marbled

with still lighter green ; flesh greenish white, firm, but not very sweet ; seed black. The fruit sometimes weighs nearly five pounds. It ripens half-late, and is seldom eaten except as a preserve. It is sometimes used for feeding cattle.

Red-seeded Water-Melon.—A vigorous plant, but not so luxuriant in growth as the black-seeded variety. The stems spread along the ground, and are seldom more than about 8 ft. long ; they have comparatively few branches. The leaves are broad, with the lobes broader and less cut than those of any other Water-Melon. Fruit spherical, 12 to 16 in. in diameter, of a rather pale green, variegated with gray bands marbled with green ; flesh watery, but rather firm, and greenish white ; seed pink or red. The fruit of this variety requires nearly four months' heat to ripen it, and is chiefly used preserved or made into jam.

Red-seeded Water-Melon (⅛ natural size).

American Varieties

In the United States Water-Melons are very highly esteemed and very extensively grown. The chief varieties are the following :

Black Spanish Water-Melon.—Fruit large, rounded, or shortly oblong, with ribs slightly marked ; skin nearly black ; flesh dark red ; seed brown or blackish. A hardy and productive kind.

Citron Water-Melon.—A kind only used for preserving. Fruit small, spherical, marked with alternate bands of dark green and silvery white ; flesh white, very firm, almost hard, scarcely edible in the raw state. It is cut in slices, and preserved like Citrons.

Cuban Queen Water-Melon.—Fruit medium-sized, oval, marked alternately with bands of light and dark green ; flesh bright red and sugary.

Excelsior Water-Melon.—A handsome, almost spherical, fruit.

Florida Favourite Water-Melon.—Early, very large, long, streaked with light green on a darker ground ; flesh deep red and good in quality.

Gipsy Water-Melon.—An enormously large kind. Fruit oblong, dark green, marked with paler spots in longitudinal bands ; flesh red ; seed brown or black.

Ice-cream, or Peerless, Water-Melon.—Fruit rounded, large, often flattened at the ends; skin thick, of a very pale green; flesh white and sweet; seed white.

Icing, Ice-rind, or Strawberry Water-Melon.—A sub-variety of the White-seeded Water-Melon, remarkable for the red colour of the flesh of the fruit, which is of moderate size, very sweet, melting, and agreeably perfumed.

Mountain, or Mountain Sweet, Water-Melon.—Fruit large, elongated, oval, sometimes slightly contracted like a Gourd, and without ribs; skin marked with faint bands, some pale, others darker in colour; flesh red, entirely filling the fruit; seed more or less dark brown. A hardy and productive kind.

Mountain Sprout Water-Melon.—This variety comes exceedingly close, in every respect, to the preceding one, but is a little later.

Orange Water-Melon.—Fruit medium-sized, oval; skin smooth, marbled with dark green on a paler green ground; flesh red, tender, and sweet.

Rattlesnake Water-Melon.—A fine form of the Black-seeded Water-Melon. Fruit oblong, elongate, and of a uniform dark green colour; flesh very red.

Round Light Icing, Ice-rind, Strawberry Water-Melon.—White-seeded, remarkable for the red colour of its flesh. Medium-sized fruit, rounded; flesh very sweet, pleasantly perfumed, and melting.

Dark Icing Water-Melon.—Is a deeper green than the foregoing and the Long Light Icing, or Gray Monarch; has larger fruit.

Sweet Heart Water-Melon.—Fruit large, rounded or slightly oblong; skin pale green, with bands of deeper colour; flesh red, melting, and sweet.

Many other varieties of Water-Melons might be mentioned, as they are perhaps as numerous as those of Melons properly so called; but as this work is chiefly written for countries in which the cultivation of Water-Melons seldom succeeds, we limit ourselves to the number just described.

MINT, or SPEARMINT

Mentha viridis, L. *Labiatæ.*

Menthe verte.

Native of Europe.—Perennial.—A plant with a creeping root-stock. Stem erect, with spreading branches at the top; leaves nearly sessile, lanceolate-acute, slightly rounded at the base, and with distantly placed teeth on the edges; flowers pink or lilac, in cylindrical spikes; seed very scanty, exceedingly fine, roundish, brown.

CULTURE.—This plant is usually propagated by division in spring. It prefers a cool moist soil, and a plantation of it will last for several years, if the stems are cut off close to the ground every autumn, and a layer of good soil or compost placed over the plants.

USES.—The leaves and the ends of the shoots are used for seasoning and for Mint sauce, which, in England especially, is considered indispensable for some dishes.

PEPPERMINT

Mentha piperita, L. *Labiatæ.*

French, Menthe poivrée. *German*, Pfeffermünze. *Danish*, Pebbermynte.

A native of North Europe.—Perennial.—A plant with a creeping stem, which readily takes root. Leaves stalked, oblong or lanceolate-acute; flowers in a cylindrical-oblong spike and of a red-violet colour. This species does not produce seed.

CULTURE.—The Peppermint-plant is grown in the same manner as the Common Mint or Spearmint. Although, in the wild state, it is usually found in parts of meadows which are wet and almost under water, it nevertheless succeeds well in moist, deep garden soil. It is always propagated from cuttings of the stems, which take root with the greatest readiness.

USES.—The leaves and stems are sometimes used for seasoning, but they are chiefly employed for the distillation of the essence of peppermint.

Japanese Mint.—Introduced from Japan, it is very like the Peppermint, but differs from that by its flowers being situated at the axils of its leaves instead of being produced in terminal spikes, and also by being reproduced by seed. Its cultivation is the same as that of the Peppermint, except for the fact that it can be raised from seed. The uses of both are the same. Like the Peppermint, it contains menthol, but in larger quantity.

PENNYROYAL

Mentha Pulegium, L. *Labiatæ.*

Menthe pouliot.

Native of Europe.—Perennial.—A plant with prostrate stems, which readily take root, bearing round-oval, slightly hairy leaves of a gray-green colour. Flowers small, lilac-blue, in rounded whorled clusters rising one above another in tiers on the stem, sometimes to the number of ten or twelve; seed exceedingly fine, oval, and of a light brown colour. The whole plant gives out a very agreeable odour, which is somewhat more powerful than that

of any other kind of Mint. The Pennyroyal prefers stiff moist soils. It is propagated by division, and a plantation of it will last for several years. The leaves are used for seasoning puddings and various dishes. It is seldom seen in English kitchen-gardens.

CAT-MINT

Nepeta Cataria, L. *Labiatæ.*

French, Menthe de chat.

Native of Europe.—Perennial.—A tall plant, with erect branching stems about 3¼ ft. high. Leaves stalked, oval or heart-shaped, notched at the edges, and whitish on the under-surface; flowers white, in terminal clusters composed of small heads which are wide apart at the bottom, but become more crowded towards the top; seeds brown, smooth, ovoid, with three well-defined angles. Their germinating power lasts for five years. It is easily raised from seed sown in spring or autumn in lines, which should be 20 in. apart, as the plants attain a considerable size. They require no attention, and will last for several years, if the ground is kept free from weeds. The leaves and young shoots are used for seasoning.

MUGWORT

Artemisia vulgaris, L. *Compositæ.*

French, Armoise. *German*, Beifuss. *Dutch*, Bijvoet. *Italian*, Santolina.

Native of Europe.—Perennial.—An exceedingly hardy plant, forming very long-lived tufts or clumps. Leaves dark green on the upper surface, whitish underneath, pinnate, with oval-lanceolate segments, the lower ones stalked, the stem-leaves sessile and auricled; stems from 2 to over 3 ft. high, red and furrowed; flower-heads small, green, in large, erect, pyramidal, irregular clusters on the ends of the stems and branches; seeds very small, oblong, gray, and smooth. Their germinating power lasts for three years.

CULTURE.—Exactly the same as that of Wormwood (*see* Wormwood).

USES.—The leaves have a strong, bitter, aromatic taste, and are sometimes used for seasoning.

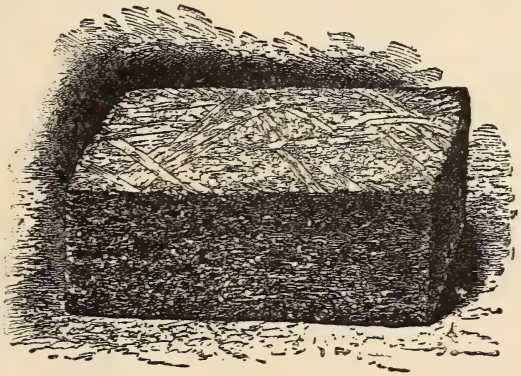
MUSHROOMS

Agaricus campestris, L. *Fungi.*

French, Champignon comestible. *German*, Schwamm. *Flemish* and *Dutch*, Kampernoelie. *Italian*, Fungo pratajolo. *Spanish*, Seta.

The cultivated Mushroom is the same kind as that which grows naturally in meadows and pastures, and in the wild state is known

in France by the names of *Champignon Rose*, *C. des Prés*, and *C. de Rosée*. In this species, as in the case of most other Mushrooms, people generally suppose that the parts which in reality are only the organs of fructification are the entire plant. The true plant, however, which feeds, grows, and finally prepares to flower, is the network of whitish threads which form what is commonly called the "spawn," or, botanically, the *mycelium*, of the Mushroom. The growth of this spawn, which is suspended in dry weather, becomes active under the influence of moisture accompanied with a sufficient degree of heat, and is developed in an especial degree in horse-manure, which appears to be the most favourable medium of all for the growth of this species. When the Mushroom-plant is on the point of flowering, it swells and produces small whitish excrescences, which soon assume the shape of a miniature parasol, usually white on the upper surface, and covered underneath with a number of very thin radiating plates or "gills," which are at first of a pale pink colour, and gradually change to brown. This parasol or cap is borne on the top of a cylindrical, fleshy, white stalk. The colour of the "gills" is an index whereby the Edible Mushroom is distinguished from the poisonous, and happily rare, kinds with which it might be confounded.



Mushroom Tablet (virgin spawn).

In the neighbourhood of Paris several varieties of the Edible Mushroom are in cultivation. These differ from one another in the colour and general appearance of the skin. It has been found from experience that these varieties (of which there are three principal ones, viz. the White, the Gray, and the Yellow) are not invariably constant, and that after some time, and when removed from the special conditions under which they were produced, they lose their distinctive character, and revert to the Common White kind. After several comparative trials, the White variety appears to us to be the best for the table. The Yellow variety is not so tender nor so well scented, while the Gray variety, although of a stronger flavour, has the drawback of discolouring the sauces made with it, even when it is not nearly full grown.

CULTURE.—Mushrooms may be easily grown everywhere,

and at all seasons, by following some directions which we shall endeavour to give as briefly and clearly as possible. The conditions essential to success in cultivating Mushrooms consist in growing them in very rich artificial soil and in a moderately warm steady temperature. And it is for this last that cellars and old subterranean quarries are often utilised for their culture. Any other kind of place would answer equally well, provided that, either naturally or by the use of artificial means, its temperature never rose above 86° Fahr., nor fell much below 50° Fahr.

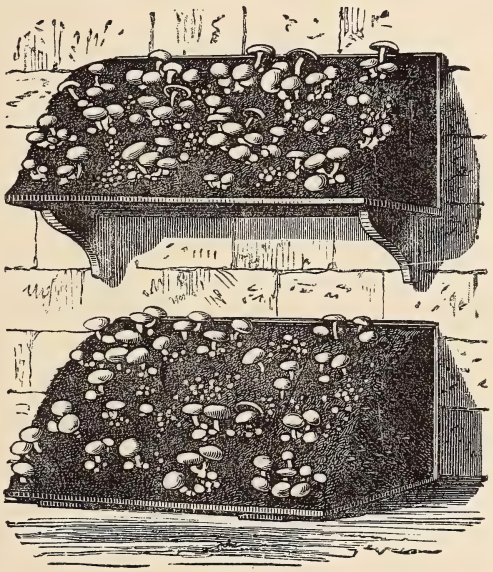
After selecting a suitable place, the first thing to attend to is the making of the bed or beds in which the Mushrooms are to grow. The indispensable ingredient of this is horse-manure, if possible that of strong, well-fed animals, not too abundantly bedded with straw, for it is best that the manure should not contain too much straw. It will not do to make the beds with this manure just as it comes from the stable, as the fermentation would be too great and would give out too much heat. It should, therefore, be tempered down by mixing it as thoroughly as possible with a fourth or a fifth part of good garden soil. As soon as this is done, the beds should be at once made with the mixture, which will ferment slowly and give out a moderate constant heat. Care should be taken to place the beds in a very well-drained place, rather dry than damp; and when they are made, all projecting straws, etc., should be removed and the surfaces made level and very firm.

Mushrooms (natural size).

If the manure is used pure, as it is by some Mushroom growers about Paris, it should be allowed to spend some of its heat before being employed. For this purpose it is brought from the stables to a place of preparation, where it is put into a square heap, about a yard or more high, formed of successive layers, well mixed together, so as to render the whole mass as homogeneous as possible, all foreign substances being carefully eliminated. Any parts that seem too dry are slightly moistened; the sides are then

trimmed and trodden down well, so as to reduce the height to about 2 ft. 8 in. The heap is then left until the heat produced by the fermentation threatens to become excessive, which is denoted by the hottest parts commencing to turn white. This usually occurs in from six to ten days after the making of the heap. The whole heap must then be taken down and made up again exactly as before, taking care to make the interior of it consist of the manure which was previously on the outside, and which was consequently less fermented. It generally happens that within a few days after the heap has been thus re-made, the fermentation becomes so violent that the heap has to be thrown down and re-made a third time.

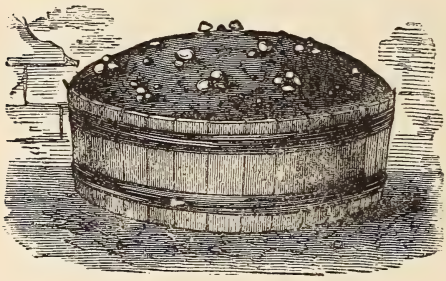
Sometimes after the second re-making, the manure will be fit for forming the beds. It may be known when this can be done without any danger by the manure having become of a brown colour, the straw having entirely lost its usual consistence, and the whole being elastic and greasy to the touch, and having no longer the smell of fresh horse-manure, but rather that of the Mushroom. It is difficult to obtain a good preparation of horse-manure unless a sufficient quantity is operated upon at once. The heap should measure at least a yard, or a little more, every way. This is a frequent cause of failure with amateurs, and should be avoided. Even if a less quantity is required for the beds, the manure should be prepared in a heap of at least the dimensions we have just mentioned, and any of it that is not required for the Mushroom-beds will be very useful for any other kind of vegetables in the kitchen-garden.



Small movable Mushroom-beds placed against a wall.

When the manure is in a proper condition, it is brought to the place where the Mushrooms are to be grown and made into beds at once. The beds may be of any shape or size desired, but experience has shown that both the manure and the space at disposal will be employed to the best advantage by making the

beds from 20 to 24 in. high, and about as wide at the base. An excessive rise of temperature from a fresh fermentation is less to be apprehended in beds of this size than in larger ones. When there is a good deal of room to spare, the best plan is to make the beds sloping at both sides and of any length that may be thought fit, but always of the same height and the same width at the base as we have just mentioned. When the beds, however, are made up against a wall or other perpendicular support, and have but one sloping side, the width at the base should be less than the height. Beds may also be made in old tubs, in casks sawn in two, or on plain flat boards, in which cases the beds should be of a conical shape, or in the form of the heaps of broken stones or road-metal often seen on roadsides. In this way it is possible to carry beds ready-made into cellars or other parts of dwelling-houses, where one would not like to bring in a lot of rough manure and litter the place by making the beds there.

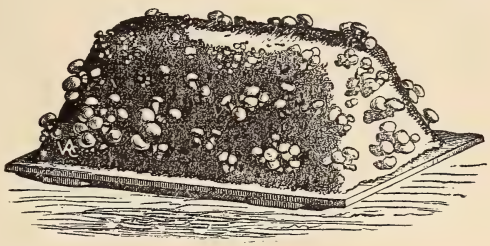


Mushrooms grown in a tub.

The beds are made by hand. The dung to be in a fit condition must be mellow and well divided, and if hard or in lumps must be crushed. The more compact material should be again mixed with the straw portion, so that the whole will be of an equal texture. It should be placed in regular layers, each layer being firmly trodden down. When the bed has attained the proper height, the sides should be made slanting and carefully trimmed, all projecting straws should be withdrawn and the surface made smooth and firm.

After the beds are made it is best to wait a few days before spawning them, in order to see whether any excessive fermentation will ensue. This may generally be pretty well ascertained by thrusting the finger into the bed, but the surest way is to use a thermometer. As long as the temperature is over 30° C., or 86° Fahr., the bed is too hot, and must be allowed time to cool down. The cooling will be quickened by making a few holes here and there in the bed with a stick, to allow the heat to escape. When the temperature stands pretty steadily at about 25° C., or 78° Fahr., it is time to put in the spawn. This may sometimes be found growing naturally in old hot-beds, or on the edges of manure heaps, and may be used for this purpose ; but it is far better to employ the dried spawn sold by seedsmen, which may be obtained at all seasons, and which grows much quicker, is more to be

depended on, and will keep good from one year to another. For a few days before it is used, it should be kept in a moderately warm, moist atmosphere, which has the effect of stimulating it into a more speedy and certain growth. For that purpose, after having been slightly moistened on both sides, it may be spread out on the beds themselves or between two beds. Just before use, the spawn should be broken up in pieces about the length and thickness of the hand by half that width, and each piece then inserted lengthwise into the bed, flush with the surface, into openings made with the hand, at a distance of from 10 to 12 in. each way, carefully pressing the dung around each piece after insertion.



Movable two-sided Mushroom-bed.

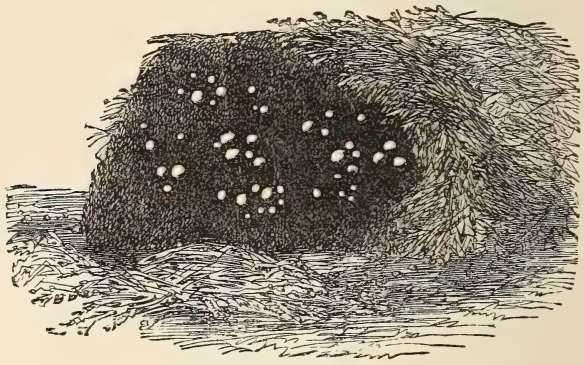
In beds of the usual height (from 20 in. to 2 ft.), two rows of pieces are generally set, in such a way that those of the upper row may be opposite the intervals between those in the lower row. The pieces should only be buried their own depth in the bed, and they are commonly put in with the right hand, while the left is employed to excavate holes for their reception. If the bed has been made in a place with a sufficiently high and steady temperature, there is nothing further to be done but to wait until the Mushrooms appear. But if it has been made in the open air, or in a place exposed to a change of temperature, it should be covered with straw, long manure, or hay, which will serve to confine a certain amount of uniformly warm air around the bed.

If the work has been properly done, and the conditions are favourable, the spawn should commence to grow in seven or eight days after it was placed in the bed. At the end of that time the beds should be examined, and any pieces which have not germinated should be replaced by fresh ones. The failure of a piece to germinate is indicated by the absence of white threads from the manure which surrounds it. In a fortnight or three weeks after spawning, the spawn should have permeated the entire bed, and should begin to show itself at the surface.

Mushroom Spawn in Clumps.

When this is accomplished, the pieces of spawn should be with-

drawn, or they would become mouldy and spoil the Mushrooms in their immediate vicinity. The empty openings should be closed by gentle pressure, the surface made smooth again, and the surrounding place carefully swept and cleaned of all decaying matter. The top and sides of the bed should then be covered with a thin layer of soil, for which a light mould should be used, slightly moistened, but not too wet. If possible use virgin soil of a light nature and containing some lime, or old plaster finely crushed, sieved, and mixed with quarry sand. If the material chosen does not itself contain saltpetre, give a watering with a weak solution of this or liquid manure. The soil should not be thicker than about ½ in., and should be pressed down sufficiently to make it adhere firmly to the surface of the bed in every part. When the surface becomes dry, light waterings should be given sparingly. If the place is



Mushroom-bed in the Open Air, protected with Straw.

inclined to be dry, the surrounding soil or walls may be sprinkled with water to help maintain the bed in a permanent state of moderate moisture. Where a covering of litter or hay has been removed to perform any operation, it must be replaced at once.

In a few weeks after the layer of soil has been added, sooner or later according to the temperature, the Mushrooms begin to appear, and, in gathering them care should be taken to fill the cavities left with the same soil which covers the bed. All injured or diseased Mushrooms should at once removed, together with the soil adhering to them.

The bed will of itself continue to yield for two or three months, and for a longer time if watered with liquid manure, guano, or saltpetre; the results being much better if the liquid is of the temperature of from 20° to 30° C., or 70° to 86° Fahr., when applied. Watering, however, should be done carefully, so as not

to dirty the Mushrooms or interfere with their growth. By making three or four beds under cover in the year, a continuous supply may be secured; and besides, during summer, beds may be made in the open air, which will yield abundantly at a trifling expense. Hot-beds, in which other plants are grown, might have their sides and the spaces between the plants spawned, and would often yield well, provided their temperature was suitable for the purpose, and that care was taken to protect the young Mushrooms with a slight covering of soil as soon as they commenced to grow.

The very interesting Paris culture of Mushrooms is fully described, and illustrated with a variety of original woodcuts, in "The Parks and Gardens of Paris," second edition; and the English market-garden culture is fully treated of in Shaw's "London Market-Gardens."

Mushroom spawn produced by the old methods was apt to degenerate. Some Mushroom growers to counteract this obtained virgin spawn from spores born in farmyard manure heaps that had remained long undisturbed; but owing to the diversity of varieties and differences in the cultural value of spawn thus obtained, it failed to give satisfaction.

All attempts at raising virgin spawn by sowing the spores of the best Mushrooms were fruitless until, in 1897, Dr. Repin, after numerous attempts, discovered a way of producing virgin spawn. This virgin spawn, now manufactured by Messrs. Vilmorin-Andrieux et Cie. in their laboratory by Dr. Repin's process, is characterised by great vigour of growth, and, being raised from spores of the healthiest Mushrooms only, is entirely free from the noxious bacterial organisms so prevalent in spawn not sterilised by the new process, and is therefore not so liable to be attacked by diseases—a fact which removes one great hindrance to Mushroom growing. The virgin spawn is sold in the form of compressed slabs or tablets, of handy size, thoroughly pervaded by the spores. One hundred tablets weigh about eighteen pounds.

Before using the tablets they should be revived, *i.e.* slightly moistened on both sides, and laid out in a moderately warm place, *i.e.* on the prepared beds themselves between two beds. In five or eight days the tablets should be ready for use; they will then have an unctuous and fatty touch if pressed between the fingers, as also the smell of Mushrooms. A small portion of the inside is laid bare. Each tablet should then be split into two or three pieces, each piece being used separately and set into the bed in such a manner that the surface laid open is in contact with the prepared manure. A rapid and even growth of the spawn through the whole bed is thus secured.

MUSTARD (WHITE or SALAD)

Sinapis alba, L. *Cruciferæ.*

French, Moutarde blanche. *German*, Gelber Senf. *Flemish*, Witte mostaard. *Dutch*, Gele mosterd *or* mostaard. *Italian*, Senapa bianca. *Spanish*, Mostaza blanca.

Native of Europe.—Annual.—A plant of rapid growth. Stem thick, often angular, branching, bearing incised leaves with rounded segments ; flowers yellow, in terminal spikes ; seed-vessels slightly hairy, terminating in a flat, membranous kind of beak, and swollen at the sides over the seeds. There are usually from three to four seeds in each side of the silique or pod, which is divided into two parts by a thin membranous partition. The seeds are white, quite spherical, and about the size of a Millet-seed. Their germinating power lasts for four years. The seed may be sown in pots, either in the open air or in a frame, and is cut as soon as the seed-leaves are well grown and of a good green, which is usually about six or eight days after the seed is sown. The leaves of this plant are generally only sent to table while they are quite young, when they are used in salads and for garnishing.

MUSTARD (BLACK, BROWN, or GROCER'S)

Brassica nigra, Koch ; *Sinapis nigra*, L. *Cruciferæ.*

French, Moutarde noire. *German*, Schwarzer *oder* Brauner Senf. *Flemish*, Zwarte mostaard. *Dutch*, Bruine mosterd *or* mostaard. *Spanish*, Mostaza negra.

Native of Europe.—Annual.—A plant with a rather slender stem. Radical leaves oblong, lyrate ; stem-leaves becoming narrower as they approach the top of the stem ; flowers yellow, in terminal spikes ; siliques or seed-vessels long and slender, each containing about twenty small, almost spherical, red-brown seeds. The germinating power of the latter lasts for four years.

The Large-seeded Black Mustard is remarkable for the large size of its yellow-green leaves. The Small-seeded Black Mustard of Sicily appears to come nearer the wild form of the plant. Its leaves are about one-third smaller than those of the Alsace variety, and are also a darker green.

Like the White Mustard, this plant is only grown in kitchen-gardens for the sake of its young leaves, which are similarly used, and it is grown in precisely the same way. The ground seeds form the mustard of commerce or grocer's mustard.

CHINESE CABBAGE-LEAVED MUSTARD

Native of China.—Annual.—A large plant, attaining the height of from 4 to 5 ft. when in flower. Radical leaves very

large, often 14 to 16 in. long, lyrate, undulating in outline, and with the edges often turned in underneath. The blade of the leaf is of a delicate or yellowish green colour, and netted, and sometimes almost crimped like that of a Savoy Cabbage. The first leaves, which are produced on the lower part of the stem, are also long and wide, but those higher up become smaller, until they are almost linear near the top of the stem when the plant is in flower, being a little broader at the base which clasps the stem. Flowers yellow, broad, in terminal clusters; siliques almost cylindrical, each containing about twenty brown seeds, a little larger than those of the Black Mustard.

Chinese Cabbage-leaved Mustard ($\frac{1}{10}$ natural size).

The germinating power of the seed lasts for four years. The seed is sown, where the crop is to stand, in August, in the open air, either in beds or in drills from 16 to 20 in. apart. After sowing, the beds or drills should be watered a few times to ensure germination, but when the cool nights of September arrive, the plants will require no further attention. In about six weeks from the time of sowing, the leaves may commence to be gathered, and the plants will continue to yield until very frosty weather sets in. The seed may also be sown immediately after winter, but the plants soon run to seed, and never yield as fine leaves as those which are sown in autumn. The leaves are eaten like Spinach. They do not lose much in substance by cooking, and they have a very agreeable flavour. In warm countries they are highly esteemed among green vegetables.

Chinese Tuberous-rooted Mustard.

Chinese Curled Mustard.—A curious variety of the Cabbage-leaved Chinese Mustard. It has the good qualities of the type,

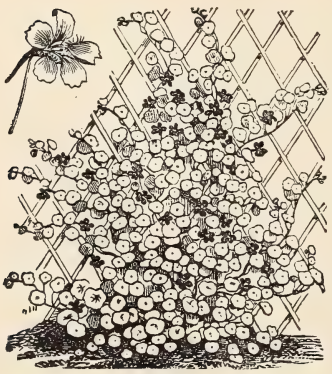
Chinese Curled Mustard.

and its elegant foliage is very useful for garnishing. The uses and the culture are the same as for the type.

NASTURTIUM, or INDIAN CRESS (TALL or LARGE)

Tropæolum majus, L. *Tropæolaceæ.*

French, Capucine grande. *German*, Kapuciner Kresse. *Flemish* and *Dutch*, Capucienkers. *Italian*, Nasturzio maggiore. *Spanish*, Capuchina grande. *Portuguese*, Chagas.



Nasturtium, or Indian Cress (Tall or Large) ($\frac{1}{20}$ natural size; detached flower, $\frac{1}{5}$ natural size).

Native of Peru.—Annual.—Stems climbing, sometimes nearly 10 ft. long when they find a suitable support; leaves alternate, long-stalked, peltate, entire or bluntly five-lobed, almost smooth; flowers long-stalked, large, with five orange-coloured petals spotted with purple, especially the two upper ones; seeds large, triangular, almost kidney-shaped, convex on one side, furrowed and wrinkled, and yellow-coloured. Their germinating power lasts for five years. The plant flowers continuously almost all through the summer.

NASTURTIUM (DWARF)

Tropæolum minus, L. *Tropæolaceæ.*

French, Capucine petite. *German*, Kleine Indianische Kresse. *Italian*, Nasturzio caramindo minore. *Spanish*, Capuchina pequeña.

Native of Peru.—Annual.—A smaller plant than the preceding kind; the stem not so slender and not requiring support; leaves nearly round; flowers yellow, with five petals, the three lower ones especially marked with a purple spot; seeds of the same shape as that of the Tall Nasturtium, but usually smaller, more wrinkled, and browner. Their germinating power lasts for five years. Sometimes dwarf varieties of the Tall Nasturtiums are confounded with this species.

Nasturtium (Dwarf) ($\frac{1}{10}$ natural size; detached flower, $\frac{1}{3}$ natural size).

The culture of Nasturtiums is of the simplest. If sown during spring and summer in the open ground where the plants are to stand, they flower and seed profusely in about two or three months after sowing. The flowers are used for garnishing salads. The flower-buds and the seeds, while young and tender, are pickled in vinegar and used for seasoning, like Capers. For this latter purpose the Dwarf Nasturtium is to be preferred, as it flowers more abundantly than the Tall kind, and does not require stakes or any other kind of support.

NASTURTIUM (TUBEROUS-ROOTED)

Tropæolum tuberosum, R. and P. *Tropæolaceæ.*

French, Capucine tubéreuse. *German*, Peruanische Knollen-Kresse. *Flemish*, Knoll-kapucien. *Spanish*, Capuchina tuberculosa.

Native of South America.—Perennial.—Roots tuberous, conical, as large as a hen's egg, with scale-like swellings, yellow in colour, striped with red, and pleasing in appearance; stems very branching, weak, about 3 ft. long; leaves peltate, divided into three or five blunt lobes; leaf-stalks red; flowers medium-sized, with a long spur and rather small petals of a yellow colour shaded with orange. The seeds seldom ripen in the climate of Paris, and the plant is propagated from the tubers.

The tubers are planted in April or May, in the open ground, 20 in. apart in every direction. The hoe should be used occasionally until the stems, spreading on the ground, cover it entirely. The tubers should not be taken up for use before the latter end of autumn, after the early frosts, as they do not form until late in the season, and are not affected by frost as long as they remain in the ground. When boiled like Carrots or Potatoes, the tubers are watery and rather unpleasant to taste, although the perfume is agreeable. In Bolivia, where the plant is much cultivated in high mountain districts, the people freeze the tubers after boiling them, and they are then considered a delicacy and are largely consumed. In other places they are eaten in a half-dried state, after having been hung up in nets and exposed to the air for some time.

Nasturtium (Tuberous-rooted) (tubers ½ natural size).

BLACK-BERRIED NIGHTSHADE

Solanum nigrum, L. *Solanaceæ.*

French, Morelle noire. *German*, Nachtschatten-Spinat. *Italian*, Erba mora. *Spanish*, Yerba mora.

Native of Europe.—Annual.—A well-known wild plant, generally regarded as a weed, growing most usually near dwelling-houses and in cultivated ground. It has an erect branching stem from 1½ to 2½ ft. long, with simple, broad, oval leaves, often wavy at the edges. Flowers white, star-shaped, growing in small axillary clusters, and succeeded by round berries, about the size of a pea, of a black or, rarely, amber-yellow colour, and filled with a green pulp, mixed with very small pale-yellow lenticular seeds. The germinating power of

Black-berried Nightshade.

the latter lasts for five years. The kind which is cultivated in the Isle of France, under the name of *Brède*, does not differ, botanically, from the common kind, but is more vigorous growing and larger in all its parts. The seed is sown where the plants are to stand, in April, in beds, or, preferably, in drills 12 to 14 in. apart. After being thinned out, the plants require no further attention, and are quite proof against dry weather. The leaves, however, are more tender and more plentifully produced if the plants are occasionally well watered when they appear to need it. This plant is not as yet used in France as a vegetable, but in warm countries the leaves are sometimes eaten as Spinach, and apparently without any injurious result, although the plant belongs to the dangerous family of the *Solanaceæ*.

MALABAR NIGHTSHADE (WHITE)

Basella alba, L. *Chenopodiaceæ*.

French, Baselle blanche. *German*, Indischer grüner Spinat. *Flemish*, Meier. *Italian*, Basella. *Spanish*, Basela.

Native of the East Indies.—Biennial, but cultivated as an annual.—A plant with creeping stems from 4 to over 6 ft. long, bearing alternate, oval-heart-shaped, slightly undulated, fleshy, green leaves. Flowers small, green or red, in spikes; seeds round, bearing the remnants of the pistil and calyx, which are persistent. Their germinating power lasts for five years at least.

Malabar Nightshade (White) ($\frac{1}{10}$ natural size).

CULTURE.—The seed is sown in a hot-bed in March. In the end of May, or early in June, the seedlings are planted out at the foot of a south wall, and the plants will yield all through the summer without any care except occasional waterings.

USES.—The leaves are eaten like Spinach, and are abundantly produced all through the summer, growing in greater profusion the warmer the weather becomes. Care should be taken not to strip a plant of all its leaves at once, as this checks its growth.

Basella Cordifolia.—This is much like the Malabar variety, but has larger, stouter, and darker green leaves; it is also more productive. The culture and the uses are the same in both. An excellent substitute for Spinach in hot climates during the dry summers.

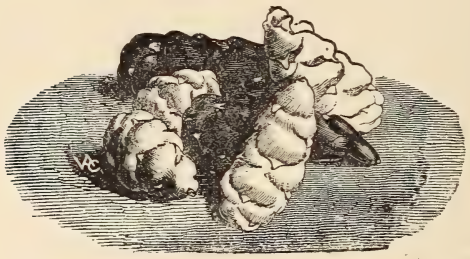
OKA-PLANT

Oxalis crenata, Jacq. *Oxalidaceæ.*

French, Oxalis crénelée. *Flemish*, Zuerklaver. *Spanish* (*American*), Oka.

Native of Peru.—Perennial, but cultivated as an annual.—Stem fleshy, red, prostrate, bearing very numerous leaves, composed of three rounded triangular thick leaflets; flowers axillary, with five yellow petals striped with purple at the base; tubers swollen, long ovoid, marked with hollows and protuberances (like some kinds of Potatoes, especially the *Vitelotte* variety), and narrowed at the end which joins the stem; skin very smooth, and of a yellow, white, or red colour.

CULTURE.—The Oka-plant is easily propagated from the tubers, which are planted in May, in light rich soil, in rows which should not be less than 3 ft. apart, on account of the spreading growth of the stems of the plant. As it continues to grow for a long time and is very sensitive to cold, it is better, if possible, to start the tubers in a hot-bed in March, and plant them out in May, at which time they will be pretty forward. As the stems lengthen, they should be covered with light soil or compost, in order to promote the formation of new tubers, taking care to leave 6 or 8 in. of the end of the stem uncovered. The tubers do not commence to swell until rather late in the season, and are not gathered until the ends of the stems have been killed by frosty weather. In France they seldom grow as large as a hen's egg.



Tubers of Oka-plant ($\frac{1}{3}$ natural size).

USES.—The tubers are highly esteemed in Peru and Bolivia, where they are largely used. Recently gathered, they have a very acid, and not very agreeable, taste. In South America they get rid of this acidity by putting tubers into woollen bags and exposing them to the action of the sun, the effect of which is that in a few days they become floury and sweet. If they are kept thus exposed for several weeks, they dry up, become wrinkled, and acquire a flavour which resembles that of dried Figs. In this condition they are known by the name "*Caui*." In addition to the tubers, the leaves and young shoots may be eaten as salad or as Sorrel.

Two varieties of this plant have been introduced into France, namely, the Yellow and the Red, differing from each other only in the colour of the tubers. The Yellow variety has spontaneously

produced a sub-variety, with pure white tubers, which reproduces itself exactly, but appears to be inferior to the other two kinds in vigour and quality for table use.

OKRA, or GOMBO

Hibiscus esculentus, L. *Malvaceæ.*

French, Gombo. *Italian*, Ibisco. *Spanish*, Gombo; (*American*), Quimbombo.

Native of South America.—Annual.—Stem stout, erect, branching but little or not at all, from 20 in. to over 3 ft. high, according to the variety; leaves very large, five-lobed, toothed, dark green on the upper surface, slightly gray underneath, with very prominent veins; flowers solitary in the axils of the leaves, with five straw-coloured petals, brown or violet in the centre; fruit pyramidal, ending in a point, with five prominent ribs, and divided into five cells or compartments filled with rather large gray or pale green seeds, nearly spherical in shape and rough skinned. The germinating power of the latter lasts for five years.

Long-fruited Green Okra (seed-vessels ⅓ natural size).

CULTURE. — Like the Egg-plant and the Tomato, the Gombo requires artificial heat in the climate of Paris, while in warmer climates it may be sown and grown in the open air. The seed is usually sown in a hot-bed in February, the seedlings are pricked out into another hot-bed, and are finally planted out in May, after which the plants only require plentiful watering to attain their full growth.

USES.—In the Colonies the young and tender seed-vessels are very extensively used as a table vegetable. They are exceedingly mucilaginous, and when cut into thin slices are made into soups and sauces, which are highly esteemed by the Creoles. The ripe seeds also are parched and used instead of Coffee. The infusion which is obtained from

them is not inferior to that made from Chicory, Sweet Acorns, *Astragalus bæticus*, and other substitutes for Coffee.

Long-fruited Green Okra.—Stem short, seldom exceeding 20 in. in height; leaves very deeply cut; seed-vessels 6 to 8 in. long, slender, long, pointed, and about 1 in. in diameter. This is the kind most commonly cultivated. There is a sub-variety in which the seed-vessels are pendent.

Dwarf Prolific Okra.—Much grown in America, it is a small-fruited sub-variety of the preceding one, and both early and productive.

Round-fruited Okra.—Seed-vessels short and thick, being about 2 in. long, and nearly 2 in. in diameter, and blunt at the ends rather than pointed. This variety is dwarfer and earlier than the preceding kind.

Early Sultani Okra.—Produces a number of short, thick fruit, very like those of the preceding.

White Velvet Okra.—The American variety known by this name is distinguished by its fruit, which is white, long, and fairly large.

ONION

Allium Cepa, L. *Liliaceæ.*

French, Ognon. *German*, Zwiebel. *Flemish*, Ajuin. *Dutch*, Uijen. *Danish*, Rodlog. *Italian*, Cipolla. *Spanish*, Cebolla. *Portuguese*, Cebola.

Native of Central or Western Asia.—Biennial, sometimes perennial.—The original native country of the Onion is not known with certainty; within the last few years, however, M. Regel, jun., discovered, south of Kouldja, in Turkestan, a plant which had every appearance of being the wild form of *Allium Cepa*, and we believe the same plant has also been found on the Himalayas.

The Onion has no stem, or rather the stem is reduced to a mere plate, from which issue, on the lower side, numerous white, thick, simple roots, and on the upper side leaves, the fleshy, swollen, and overlapping bases of which form the bulb of the Onion. The form, colour, and size of the bulb are very much varied in different varieties of the plant. The free portion of the leaves is elongated, hollow, and tapering into a point at the end. The flower-stems, which are very much longer than the leaves, are erect, hollow, and swollen in the lower part for about one-third of their length. The flowers, which are white or lilac, are severally borne on very slender stalks, and are collected in a very dense spherical head on the top of the flower-stem. Sometimes, instead of flowers, a head of small bulbs is produced. This may occur exceptionally in any of the varieties, but is an invariable characteristic of the Tree Onion, which is thence named the Bulbiferous Onion. The

flowers are succeeded by capsules of an almost triangular shape, filled with black, angular, flattish seeds. The germinating power of the latter lasts for two years.

Usually, the plant, after seeding, dies and disappears entirely; but sometimes we find Onions which produce cloves as well as seeds. Such plants may be considered perennial, as well as the Potato Onion, which never seeds and is propagated by division of its bulbs.

The culture and use of the Onion date back to a very remote period of antiquity. The strong odour and flavour of all parts of the plant caused it to be valued in very early times as a seasoning, and being easily grown, man has carried it with him into almost every climate of the world. Hence a great number of varieties have resulted, the best of which have become fixed, and form the various kinds which are now in cultivation.

CULTURE.—The Onion, considered only with a view to the production of bulbs for household consumption, is generally grown as an annual plant, whether sown for a summer crop or sown in autumn. For a summer crop, the seed is sown in spring, and the crop is gathered at the end of summer or in autumn. In this case, the entire growth of the plant is completed in the course of the same year. This mode of culture is the general one in the central and northern districts of France, where Onions are grown very extensively and as a field crop. The seed is sown in the latter part of February, or in March, in good, moist, but well-drained soil, which has been well manured and well pulverised at the surface, and at the same time is somewhat firm and compact underneath. The seed, being rather small, should be only slightly covered. In gardens, Onion-beds, after being sown, are often simply strewn with leaf-mould or with grape skins from the wine-presses. When the seedlings have grown pretty strong, they are thinned out more or less, according to the size of the variety, and after that require no further attention until they are fully grown. Watering is not necessary except in unusually dry weather.

When the seed is sown in autumn, the growth of the plants is continued from one year into the next. This mode of culture is most common in districts where the winter is mild, as in the west and all through the south of France. The seed is sown from August to October, and the young plants are planted out either in the course of the same autumn or as soon as the winter is over. This way of growing Onions is not so simple as that first mentioned, but the crop is finer and earlier. It is generally practised, as we have just said, in southern districts, and it is in this way that the enormous Onions which are sent during winter to our markets from Spain, Italy, and Africa are raised. At Paris, too, it is almost the only way in which the Early White Silver-skinned Onion is grown.

This is sown in August or September, and the seedlings are generally pricked out in October (the roots and leaves being trimmed at the same time), and they are slightly sheltered during the winter when the frost is severe. The bulbs are fit for use in May. By sowing the New Queen variety in the same way, a crop could, no doubt, be obtained in April.

Sometimes the Onion is grown as a biennial—that is, its culture extends over nearly two whole years. In this case, the growth is retarded by planting out, not young seedlings, but small bulbs raised the year before by sowing very thickly in spring and growing them on like summer Onions, but without thinning them. These small bulbs, which are about as big as a Hazel-nut, easily keep through the winter, and when planted out in spring increase in size rapidly, and in a few months become as fine bulbs as those obtained from plants grown on through the winter in the usual way. This mode of culture was recommended a very long time ago by MM. Lebrun and Nouvellon, who applied it to Onions of every kind. At the present day it is generally practised, especially in the east of France, with a yellow variety, the small bulbs of which form an important article of commerce, under the name of *Mulhouse Onions*. When the bulbs of this variety are fully grown, it is very difficult to distinguish them from those of the Strasburg Onion. The Brown Portugal Onion may also be grown in the same way.

For good Onions there is always a large demand, and late in the season they fetch high prices. In nearly all market-gardens round London, Onions are grown to a large extent both as summer and winter crops. In the neighbourhood of Lea Bridge large fields are devoted to them, and from this district come large quantities of the finest produce brought to market. Great breadths of Onions are also grown at Fulham, Chiswick, Deptford, and Mitcham, the land thereabouts being light and rich and well suited for their culture. The main spring sowing, which consists usually of the Deptford and Reading varieties, is made as soon after the middle of February as the condition of the soil and weather permits. If the seed be good and is sown broadcast, nine to twelve pounds per acre are used; but if sown in lines, only eight pounds to the acre are needed. Land intended for Onions is generally roughly trenched during winter and thrown into ridges, so as to become thoroughly pulverised and sweetened by the action of the frost. During dry weather in February the ridges are levelled and the surface rendered smooth by raking and rolling, after which the seed is sown either broadcast or in drills 9 to 10 in. apart. If small pickling bulbs be desired, seed is sown broadcast at the rate of twenty pounds per acre. After sowing, the seed is raked or harrowed in, and the operation is completed by rolling the surface firm and even. After the young Onions appear above the ground, weeding and thinning are proceeded with as may be required. Broadcast sowing is considered the best

for spring-sown crops, as involving less labour; and as the bulbs, after thinning, stand at regular distances apart over the whole area, the produce per acre is considerably more than when sown in beds or lines. Seed sown in the autumn is, however, sometimes drilled on beds 4 or 5 ft. wide, these being divided by narrow alleys, which serve as walks for labourers who weed the beds and draw the crop as required for market; but this crop is also often sown broadcast.

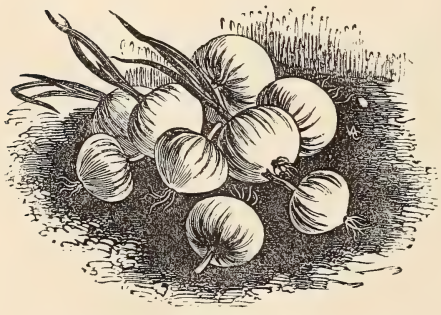
Onion seed takes a long time to germinate, but if the ground be clean and well tilled, weeds will not appear much sooner than the Onions, or, at least, not so thickly as to choke them. As soon as the Onions have fairly come up, women or men accustomed to Onion-cleaning are set to work amongst them. These operators are furnished with short-handled 2½-inch wide hoes, with which they hoe down the weeds and thin the whole crop with wonderful certainty and expedition. The field is marked off into strips for the guidance of the hoers, to each one of whom there is a space of 6 ft. given, so that were four cleaners employed the strips would each be 24 ft. wide. People accustomed to this work do not trample carelessly about; nor, indeed, can the crop be materially damaged by doing so, for the Onions that are thus prostrate to-day are nearly erect to-morrow. Each plantation is generally cleaned by this means three times during the season, the last cleaning being made about the end of June or early in July, and any large weeds that appear after that time are pulled out by the hand. Towards the end of August or early in September the Onions, being ripe, are harvested when dry. Those that are green and thick-necked are laid aside for immediate sale; but the firm and sound bulbs, particularly of the Deptford kind, are either cleaned of any loose scaly skins and spread out a few inches deep over the floor of a loft, or tied into bunches and strung in pairs over poles or pegs in a loft or shed, so that they can be marketed at any convenient season during winter and spring.

The profits on a good crop of spring-sown Onions are remunerative, although they vary in some seasons. Sometimes as much as £45 per acre is made of them by the grower, the purchaser being at the expense of harvesting the crop. At other times, however, £30 per acre is considered a good price. The Silver-skinned Onion, which is grown largely for pickling, is sown on good land, the plants being left as thickly as they come up, as the closer they are together the sooner they will cease growing in summer and the better they will ripen their bulbs. Good clean bulbs realise from 8*s.* to 10*s.* per bushel in the market. The autumn sowing of Onions is made on ground cleared of Cauliflowers, Cabbages, or other early crops, in the end of July for drawing in a young state from September onwards, but the main sowing is not made till about the middle of August. The autumn sowings are, as a rule, made in beds about 5 ft. wide, and the seeds are covered deeper than those of the spring sowings. They are not often made broadcast on fields, as they must be weeded, not hoed, in the process of cleaning; the hoeing would thin them too much. As they are only required for drawing when young they do not need to be more than one-third of the distance asunder required in the case of the summer Onions. They are weeded soon after they come up, and once,

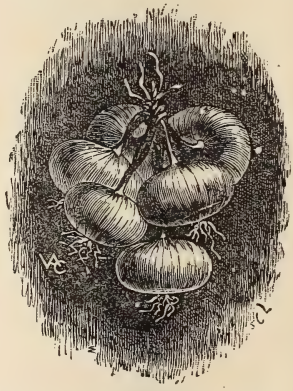
or perhaps twice, during the winter time. The weeding is done by women in dry weather, each woman taking with her a small round basket to put the weeds into, rather than throw them on the alleys. In marketing these Onions they are cleared off the beds in large patches, and not by picking out the strongest and leaving the weakest, as is generally done; and they are washed, which makes them look white. If a portion be intended for transplanting, a piece of well-prepared rich ground is made ready for them, rolled firmly, and lined off into rows about 9 in. apart, and into these lines the young plants are dibbled about 6 in. apart. These make large saleable bulbs early in July. The kinds used for autumn sowings consist of White Spanish, White Tripoli or Lisbon. Some growers save large quantities of Onion seed, for which purpose well-formed bulbs are selected and planted in spring in rows which vary from 2 to 6 ft. apart, Lettuce, Radishes, Spinach, or other low-growing vegetables being grown as intermediate crops. After the flower-stems make their appearance they are staked at intervals, and twine or cord is strained on either side the rows to prevent the stems being beaten down by hail, rain, or wind. Ordinary Onion seed fetches from 2*s.* to 5*s.* per lb., according to the season; but the best seed, or that from improved or rare sorts, is more valuable. In Hertfordshire large breadths of seed Onions may be seen in July, and on good deep land it is considered one of the most profitable of crops. *

USES.—The bulbs are eaten boiled, raw, or pickled with vinegar.

Small White Extra Early Barletta Onion.—Bulbs very rapidly; it is, in fact, the earliest of all Onions. Sown in the spring, it roots within two months. The roots are large enough for



Small White Early Barletta Onion.

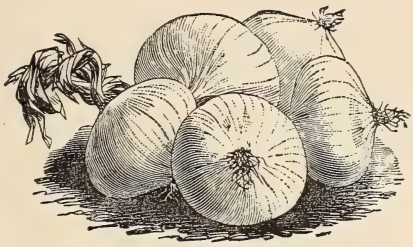


New Queen Onion ($\frac{1}{3}$ natural size).

pickles and even for kitchen use. The bulbs are white, small, shaped like the White Lisbon Onion, flat on top and rather conical at the bottom.

* Onions for Exhibition, see p. 763. Onion Fly see p. 777.

New Queen Onion.—Bulb small, very much flattened, silvery white from $1\frac{1}{5}$ to $1\frac{3}{5}$ in. in diameter, and from $\frac{3}{5}$ to $\frac{4}{5}$ of an inch thick; neck fine, soon becoming green, if the bulbs are stored in the expectation that they will keep; leaves very short, dark, slightly glaucous green, three or four, or at most five, in number when the plant is fully grown. It is not unusual to find, amongst plants sown in spring, some bulbs growing as large as walnuts, and ripening without forming more than two leaves. This variety is an exceedingly early one. If sown in March, the bulbs begin to swell in the course of the following May; but, on the other hand, it is not at all a productive kind, nor does it keep well.



Early White Nocera Onion ($\frac{1}{3}$ natural size).

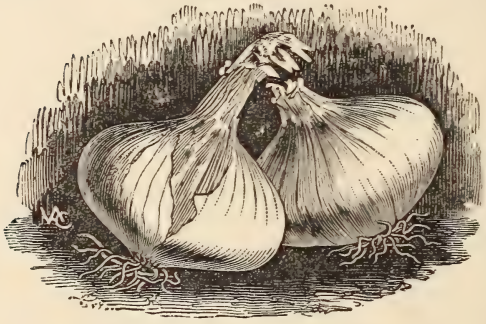
Early White Nocera Onion.—This variety is probably only a form of the preceding one which has been so modified by long-continued cultivation in a colder climate than that of its native district, as to have become larger in size and a little later in coming to maturity. Bulb silvery white, flattened, broader and flatter than that of the preceding kind, being from 2 to over 3 in. in diameter, and from $\frac{4}{5}$ to 1 in. thick; neck fine; leaves few, dark green. In spite of every care taken in the selection of plants for seed, a small percentage of light brown or chamois-coloured bulbs will almost always be produced. It is a very early kind, but at least three weeks later than the New Queen Onion, and, like that variety, keeps badly.

Early Paris Silver-skinned Onion ($\frac{1}{3}$ natural size).

Early Paris Silver-skinned Onion. — Bulb silvery white, flattened, and of about the same diameter as that of the preceding kind—that is, from 2 to over 3 in.—but thicker, and formed of more numerous and more closely set coats; neck fine; leaves of a rather deep, slightly glaucous, green, and not numerous. This variety is not so early as the preceding one, but keeps better; yet the bulbs are almost always sent to table quite fresh, and most frequently before they are fully grown. It is one of the best early Onions, and very probably originated from one of the early South

Italian varieties, which, when grown in the climate of Paris, exhibit a tendency to become identical with this variety.

Early White Valence Onion.—Bulb not so broad as that of the preceding kind, but thicker and larger, being less than 3 in. in diameter, and from $1\frac{3}{5}$ to 2 in. thick; leaves rather numerous, of a yellow-green colour. This variety is rather early and productive, and the bulbs are tender, but do not keep well. It is more suitable for the southern than for the northern parts of France. As regards its origin, it is more likely that it is a smaller and earlier form of the White Lisbon Onion than that it has sprung from any of the kinds which have been previously described.

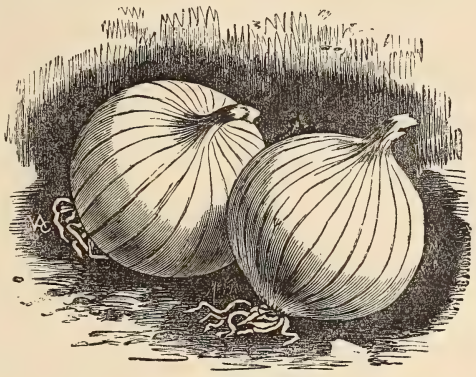


Early White Valence Onion ($\frac{1}{3}$ natural size).

White Round Dutch Onion.—Bulb a dull white, medium-sized, very firm, with thick tough coats, and varying from 2 to nearly 3 in. in diameter, and from $1\frac{1}{5}$ to $1\frac{3}{5}$ in. in thickness. It is not so much flattened as that of either the Early White Nocera or the Early Paris Silver-skinned Onion, and is also somewhat later than these varieties, but, on the other hand, it keeps remarkably well. In this respect it will bear comparison with the good yellow or red varieties of Onions. It is distinguished from the white varieties hitherto described by the outer coats of the bulb being firm and tough, instead of being of a delicate, brittle, and almost transparent texture. In consequence of this peculiarity the bulbs keep better, and are never disfigured by the greenish tinge which exposure to the sun often produces on the bulbs of the very early white varieties of Onions. The American *White Portugal*, or *American Silver-skin*, Onion is so much like the White Round Hard Dutch Onion that some consider the two to be identical. The White Portugal, however, has generally the bulbs larger and more regular, though not so firm as the Dutch variety.

White Round Dutch Onion ($\frac{1}{3}$ natural size).

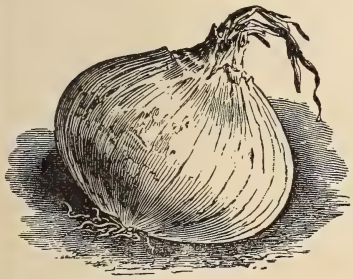
White Globe, or Southport White, Onion.—Bulb silvery white, almost exactly spherical, with a diameter of from $2\frac{2}{5}$ to $3\frac{1}{5}$ in. every way, very firm, with a fine neck, and keeping remarkably well; leaves dark green, slender, and rather numerous. This variety is about as early as the White Lisbon.



White Globe Onion.

Neapolitan Maggiojola White Onion.—An early and very large kind. Bulb silvery white, 4 or 5 in. in diameter, and about 2 in. thick; flesh tender; neck rather stout; leaves numerous, and of a peculiar light tint. This variety derives its name from the circumstance that in Italy it attains its full growth in the month of May, but it does not do so in France until August. However, it is a comparatively early kind, considering its large size and great productiveness. It does not keep well.

White Lisbon Onion.—Bulb round, more or less flattened, sometimes irregular in shape, 3 to 4 in. in diameter when well grown, and from about 2 to over 3 in. thick, often slightly pear-shaped in the lower part; neck rather thick; leaves numerous, and yellow-green. The flesh is not very firm, and, although it ripens rather late, this variety does not keep very well. It is most usually sent to table fresh from the ground, even in the south of France. In England it is grown in immense quantities for use while quite young and hardly formed, the bulbs being scarcely larger than a Walnut.



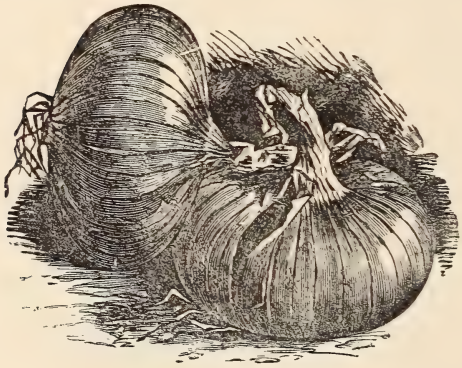
White Lisbon Onion ($\frac{1}{3}$ natural size).

Large White Flat Italian Tripoli Onion.—It is rather difficult to procure this variety perfectly true to name, and it does not appear to be very extensively grown, even in Italy. It is in all points an exaggerated form of the Maggiojola variety, being one-third broader, often exceeding 6 in. in transverse diameter, with a depth of about 3 in. The neck is thick, and the leaves stout and dark green. The coats of the bulb are of a pearly white when dried, but more or less green as long as

they retain any moisture. This is a half-late and productive variety, and keeps tolerably well.

Brown Portugal, or Straw-coloured White Spanish, Onion (*Ognon Jaune Paille des Vertus*).—Bulb very much flattened, 3 to 4 in. in diameter, and about 2 in. thick, of a coppery yellow colour, with firm thick coats, which do not easily come asunder, and are deeper coloured in the underground part of the bulb than in the upper and exposed part; neck rather fine; leaves numerous, broad and dark green. This is a rather early and exceedingly productive variety, and keeps to perfection. It is the kind most commonly used for field culture about Paris, and is grown in very large quantities in the neighbourhood of Saint-Denis, and as far as Normandy. The winter supply of Paris and of a great part of Europe consists chiefly of this variety, which may be often seen hanging up in dwelling-houses in long hanks formed by interlacing and plaiting the withered leaves together.

Italian Tripoli Onion ($\frac{1}{3}$ natural size).



Brown Portugal Onion ($\frac{1}{3}$ natural size).

Sulphur-coloured White Spanish Onion ($\frac{1}{3}$ natural size).

Reading, or Sulphur-coloured White Spanish, Onion.—Bulb quite flat, 3 to 4 in. in diameter, and 2 in. or less thick, very much resembling that of the Brown Portugal, or Vertus, Onion, but of a far less coppery colour, and very perceptibly not so thick; coats firm, rather thick, very closely set, of a bright, slightly green, almost

brazen-yellow; leaves light green, fairly broad and long. A mid-season variety, very hardy and productive, and keeps remarkably well. This is the sort most generally grown and cultivated in England. There are many varieties of it grown, of which Nuneham Park, Banbury Improved, Naseby Mammoth, and Cantello's Prize are the principal.

Danvers Yellow Onion ($\frac{1}{3}$ natural size).

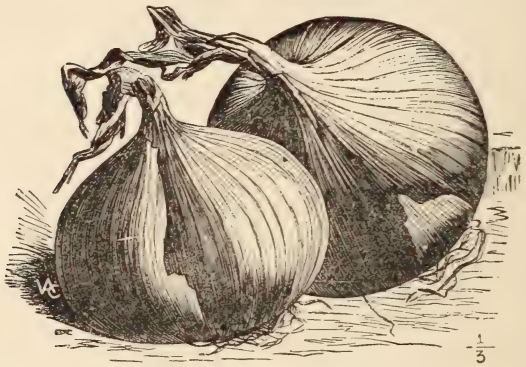
Danvers Yellow Onion.—Bulb spherical or slightly flattened, coppery yellow, and a little redder than the Brown Portugal, or Vertus, Onion, usually from $2\frac{2}{5}$ to $3\frac{1}{5}$ in. in diameter, and nearly the same in thickness; coats numerous and closely set; neck very fine, as is also the disc or plate from which the roots issue; leaves medium-sized, and light green. This is an excellent early kind, and keeps very well. It is as well adapted for field culture as for the kitchen garden, but should always be sown in spring. When sown in autumn, we have always found it to run to seed in the following spring without bulbing to any extent. It is an American variety, and when first introduced into France (about 1850) was quite spherical in shape, but now it grows almost always more or less flattened, not only in European gardens, but also in its native country.

Yellow Trebons Onion ($\frac{1}{3}$ natural size).

The English and American varieties *Australian Brown, Cranston's Excelsior, Crew's Globe, Golden Ball, Michigan Yellow Globe, Up-to-Date, and Yellow Globe*, some small differences in size, colour, and earliness apart, may all be considered as derivations of the Danvers Yellow.

Yellow Trebons Onion.—Bulb usually pear-shaped, more or less elongated, about as long a broad, generally 3 to 4 in. every way, narrowed at the neck,

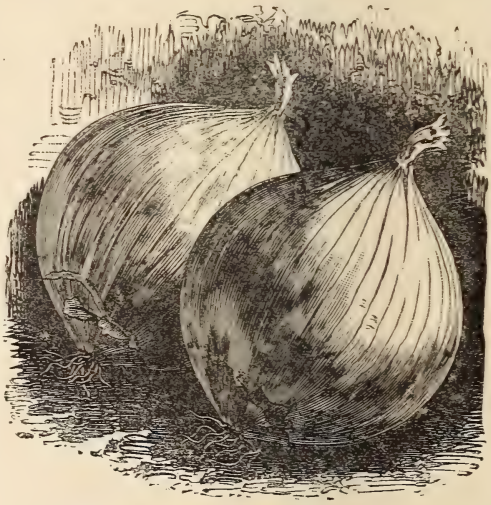
and very often at the other end; inner coats of a bright yellow colour, outer ones of a slightly coppery hue; neck narrow; leaves numerous, but slender, and dark green; flesh tender, sweet, and of an agreeable mild flavour. This is a half-late variety, of remarkably good quality, but rather difficult to keep, and answers equally well for sowing in spring or in autumn. It was raised in the neighbourhood of Tarbes (Hautes-Pyrénées).



Giant Zittau Onion ($\frac{1}{3}$ natural size).

Giant Zittau Onion.—Bulb large, flattish, 4 to nearly 5 in. in diameter, and a little over 2 in. thick; outer skin very smooth and almost silky, of a pale salmon-colour, forming the connecting link between the yellow-skinned and the pale red-skinned varieties; leaves pretty numerous, of a light, slightly yellow, green; neck fine, as is also the disc, or part from which the roots issue. This is a fine mid-season variety, and is most productive and keeps very well. It does best in light, well-drained, but at the same time rich and well-manured soil.

Giant Spanish, or Spanish King, Onion.—A large, almost round, light straw-coloured bulb, tender and with very thin coats, and about the size of an orange. From the South of France and Algiers it is exported in large quantities to Great Britain.



Giant Spanish, or Spanish King, Onion.

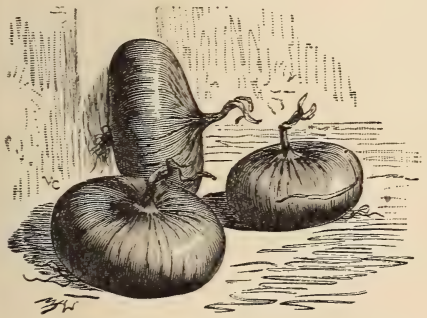
The well-known and much-prized American Onion known as the *Prizetaker* is so like the Giant Spanish Onion that the two may be considered as identical.

James' Keeping Onion.—Bulb top-shaped, flattened on top and narrowing into a blunt cone towards the roots; the neck is slender; a very interesting variety of a very pretty chamois or salmon colour. Its chief merit is its keeping quality, the bulbs of the true James' remaining firm and solid up to mid-summer in the following year.

Very Early Rose-coloured Port Sainte-Marie Onion.

Very Early Rose-coloured Port Sainte-Marie Onion.—A small flat bulb resembling the Queen Onion in shape and size, but with rose-coloured, sometimes almost red, skin. The neck is very small and the leaves scanty, and early to die off. Of all coloured onions, it is much the earliest, and among the silver-skins it is second only to the Early Queen by a few days. It is extensively grown and very popular in Southern France.

Market Favourite Keeping Onion (*O. de Mazé*).—A very pretty Onion of choice quality, which forms with the James' Keeping Onion the link between the yellow and the red Onions. It is in fact a salmon shade between yellow and rose. In shape, it is very different from the James' Onion in being flat. The foliage is scant and light. A half-early kind, bulbing rapidly, and keeping well. Easy to cultivate, it is a good Onion for the kitchen-garden as well as for the market-grower.



Market Favourite Keeping Onion.

Common Pale Red Onion.—Bulb medium-sized, flattened, 2 to nearly 3 in. in diameter, and from $\frac{4}{5}$ to $1\frac{3}{5}$ in. thick, somewhat irregular in shape; outer coats coppery pink; inner ones a darker shade, changing to a purple; neck rather thick; leaves pretty numerous, short, and light green in colour. This is a hardy variety, and is very generally grown. It is a half-early kind, and keeps tolerably well, although it readily parts with its outer coats, like the kinds

which start to grow too soon. It is only suitable for spring culture. There are very many local forms of it which hardly differ from one another. That which is most frequently met with in commerce is grown in the neighbourhood of Bourgueil, in Touraine. The *Pale Red Strasburg, or Dutch, Onion* is closely allied to the Common Pale Red Onion, differing from it only in being a little more coppery in colour, and not quite so much flattened in shape.

Niort Pale Red Onion.—Bulb broad and flat, 3 to 4 in. in diameter (sometimes more), and from $1\frac{1}{5}$ to $1\frac{3}{5}$ in. thick, of a pale pink, slightly tinged with copper colour, and with some purple on the inner coats; leaves numerous, erect, large, and light green; neck rather fine. The outer coats of the bulb are thin and

Common Pale Red Onion
($\frac{1}{3}$ natural size).

Niort Pale Red Onion
($\frac{1}{3}$ natural size).

brittle, but it keeps well notwithstanding. This is an excellent, early, and very productive variety, and is very highly esteemed in the west of France. It answers well for sowing in spring, but succeeds best in its native district when sown in autumn, and transplanted either at the beginning or the end of winter, for the winters are mild in Brittany, Vendée, and Poitou, where it is chiefly grown.

The *Lencloître* Onion, a great favourite in Poitou, is only a form of the present variety which has a somewhat flatter and harder bulb.

The *Saint-Brieuc* Pale Red Onion differs from the Niort variety in having the bulb not so much flattened, yellower and less tinged with red. It is also not so hardy. Of the two varieties the Niort is preferable in every respect, and it has almost entirely superseded the *Saint-Brieuc* even in Brittany.

Early Flat Red Onion.—An exceedingly early variety, which bulbs almost as soon as the Early White Silver-skinned Onion, like which it has scanty and slightly glaucous leaves. The bulb is very broad and flat in proportion to its depth, and is of a decided red colour when dried a little, but while growing, and also underneath the outer coats, it is more of a purple colour. It is a good first-crop Onion, but, like most very early varieties, does not keep very well.

Bright Red August Onion ($\frac{1}{3}$ natural size).

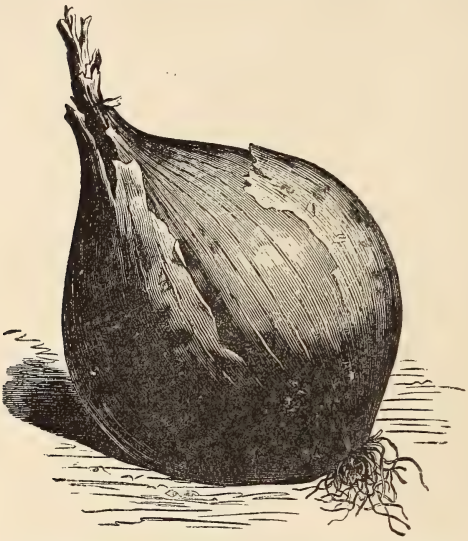
Bright Red August Onion. — This handsome variety is not unlike the Mézières Onion described further on, but the bulb is somewhat smaller, seldom exceeding 4 in. in diameter, and about $1\frac{3}{4}$ in. in thickness. It is usually thicker in comparison with its diameter than the *Mézières* variety, and also less flattened at the ends; its colour is a little darker on the outer coats, and violet-red on the inner ones. An essential difference between the two kinds is that the August variety is especially suitable for sowing in autumn. It is chiefly grown in the south-eastern parts of France, where it is sown in August and transplanted in October, the crop coming in in the course of the following summer. It is productive and keeps well.

Blood-red, or St. Thomas', Onion.—Bulb very much flattened, seldom exceeding about an inch in thickness, with a diameter of from $2\frac{2}{3}$ to $3\frac{1}{3}$ in.; coats firm, closely set, of a deep wine-red on the outside; inner ones of a fine, intense, brilliant red; neck fine; leaves rather stiff, compact, and dark green. This is a mid-season variety, not very productive, but keeps very well. It is hardy and easily grown, and is most in favour in the northern districts of France.

Blood-red, or St. Thomas', Onion.

In the south-west of France, especially about Bordeaux, a very fine variety of Onion is sometimes met with under the plain name

of the Red Onion. The bulb of this variety is as highly coloured as that of the Blood-red Onion, but in shape and size it more resembles the Flat Tripoli. It is sometimes nearly 5 in. in diameter, and is very much flattened at top and bottom. The flesh is tender and mild flavoured, but the bulb does not keep well.



Globe Tripoli, or Madeira, Onion (⅓ natural size).

In all the Red Onions just described, the red colouring is superficial. When the bulbs are cut across, two or three of the outer coats are seen to be pretty highly coloured, while the interior ones are hardly pink.

Globe Tripoli, or **Globe Red Madeira, Onion.**—This is the largest of all varieties of Onion. The bulbs are almost spherical, and it is not uncommon to see some of them 6 or 7 in. in diameter. The outer coats are very thin and brittle, and salmon-pink in colour, while the inner ones have a tinge of lilac. The flesh is very tender, sweet, and mild flavoured. The neck is rather fine for the size of the bulb; leaves stout, numerous, and light green. This variety does best in warm climates, and in the south of Europe is highly valued for its size and agreeable flavour. It only attains its full development when sown in autumn. In the climate of Paris it is very sensitive to cold, and does not keep well.

Flat Tripoli Onion (⅓ natural size).

Flat Tripoli, or Flat Red Madeira Onion.—Bulb of large size, broad, and very much flattened, from 6 to 8 in. in diameter, and about 2 in. thick, of the same colour as the preceding kind, or a little redder. The flesh, like that of the Globe Tripoli, is tender, and the bulb keeps equally badly. Both varieties are grown in exactly the same manner.

In order to obtain the enormous specimens of Tripoli Onions which may be sometimes seen exposed for sale by dealers in southern produce, the seed is sown in August, and the young plants are planted out in October and November. In the following year their growth is stimulated by continual supplies of water and manure, until July or August, when watering is discontinued, and in about a month afterwards the bulbs are gathered, some of them weighing two pounds each or even more.

Blood-red Flat Italian Onion ($\frac{1}{3}$ natural size).

Blood-red Flat Italian Onion.—Bulb flat, rather thick, from $4\frac{4}{5}$ to $5\frac{3}{4}$ in. in transverse diameter and a little over 2 in. thick; outer coats rather thick and dull red; inner ones of a brighter shade slightly tinged with violet; flesh tender and not very close; leaves numerous, stout, and dark green. This is a half-late variety, and rather difficult to keep. It does better when sown in autumn than when sown in spring, and is especially suitable for warm climates. When grown in northern countries, it quickly alters, losing much of its size, and at the same time becoming closer in texture and stronger in flavour.

Giant Rocca Onion ($\frac{1}{3}$ natural size).

Giant Rocca Onion.—A very handsome and good variety, of Italian origin. Bulb somewhat smaller than that of the Tripoli Onion, and still further distinguished from it by being chamois colour rather than pink, and flat on the top. The neck is fine for the size of the bulb, and the outer coats are firmer and tougher than those of the Tripoli Onions. The leaves are stout (but not excessively so), stiff, and a light green. A well-grown bulb will have a diameter of nearly 5 in., with a thickness of about $3\frac{1}{2}$ in. This is a half-late variety, very productive, keeps well, and, for a southern kind, does not do badly when sown in spring, although it succeeds far better when sown in autumn. A sub-variety is grown in Italy, under the name of *Rose-coloured*

Rocca, which differs from the Giant Rocca only by its russet colour.

Pear-shaped Onion.—There are numerous varieties of long-bulbed Onions, which differ from one another in colour and earliness. In these, the broadest part of the bulb is usually nearer to the neck than to the roots, so that the bulb narrows more abruptly at the neck end than it does towards the roots, and resembles a Pear with its stalk downwards. In Spain a White Pear-shaped Onion is cultivated. This is a late and large-sized kind, often growing nearly 5 in. long and about 3 in. in diameter. In France and Germany there are several other varieties of Pear-shaped Onions with a red or yellow skin, one of which grows so long that it is named the *Ox-horn, or Spindle-shaped Onion*. These varieties, however, are more curious than useful.

Pear-shaped Onion ($\frac{1}{3}$ natural size).

Tree, Egyptian, or Bulb-bearing, Onion.—Bulb rather flat, coppery in colour. Instead of seeds, the stem produces at the extremity a cluster of small bulbs, of a brown-red colour, from which the plant is propagated. When planted in spring, these small bulbs form large ones by the end of the year, but do not produce any bulblets until the following year. The flesh of the Tree Onion is agreeable, but rather deficient in delicacy of flavour. The bulbs soon decay, but the bulblets keep very well.

Tree, Egyptian, or Bulb-bearing, Onion ($\frac{1}{15}$ natural size; detached bulblets, $\frac{1}{3}$ natural size).

Catawissa Onion.—Some years since a variety was introduced

from America under the name of the *Catawissa Onion*, which appears to us to be only a slight modification of the Tree Onion, from which it is distinguished by the great vigour of its growth and the rapidity with which the bulblets commence to grow without being detached from the top of the stem. These have hardly attained their full size when they emit stems which also produce bulblets, and in favourable seasons this second tier of bulblets will emit green shoots, leaves, or barren stems, bringing the height of the plant up to over 2½ ft. Only a small number of bulblets (two or three on each stem) emit shoots. The rest do not sprout in the first year and can be used for propagating the plant. The plant is perennial, and may be propagated by division of the tufts, like the Welsh Onion.

Catawissa Onion (⅓ natural size).

Potato Onion. — Bulb rather large, from 2 to over 3 in. in diameter, and about 2 in. thick; skin thick and of a coppery yellow colour. This variety more frequently forms a cluster of underground bulbs of irregular shape than a single round bulb. It produces neither seeds nor bulblets, and is propagated only from the cloves or bulbs which are formed underground. If pretty strong cloves are planted immediately after winter, well-grown Onions may be gathered from them in the following June; but if the plants are allowed to attain full maturity, instead of a single bulb from each, seven or eight will be produced of various sizes. The strongest of these will also in their turn produce a number of bulbs or cloves, while the weaker ones generally grow into a single large bulb. The flesh of the Potato Onion is very agreeable to the taste and of good quality. The larger the bulbs are, the worse they keep.

Among the very numerous varieties of Onions which exist in addition to those just described, the following are the most noteworthy :—

Ognon d'Aigre.—A local variety, grown in the Department of Charente, which may be regarded as a sub-variety of the Niort Pale Red Onion, but has a flatter bulb.

O. Rouge Pâle d'Alais.—A southern variety, suitable for sowing in autumn. It is tolerably like the Niort Pale Red Onion, but is thicker in the bulb.

O. Paille Gros de Bâle.—A rather handsome, half-early variety, with a flat, well-shaped bulb, and a very fine neck, intermediate in colour between the White Spanish and the Strasburg Onion.

Bedfordshire Champion Onion.—A fine English variety. Bulb nearly spherical, and of the colour of the sulphur-coloured White Spanish Onion. It is a little thicker than the Naseby Mammoth and its allies, which are mentioned farther on.

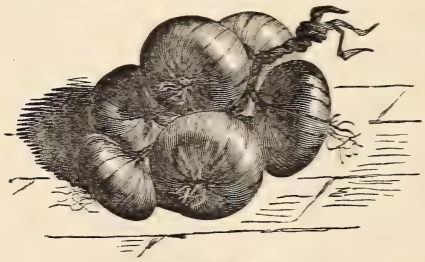
Dark Red Brunswick Onion.—Bulb very flat, rather small, seldom exceeding about 2½ in. diameter, and about an inch or less thick, hard and firm, of such a deep red colour that it verges on black; neck fine; leaves short, rather slender, and a dark, slightly glaucous, green. This is a moderately productive kind, but keeps remarkably well.

Ognon Cabosse.—Bulb very flat and rather firm, with a very fine satiny skin of a slightly coppery or salmon-pink colour. The neck is very fine, and the disc or plate from which the roots issue is remarkably small. This fine variety is well adapted for sowing in autumn.

Cantello's Prize Onion.—Intermediate between the White Spanish and the Strasburg Onion, it comes near the numerous English varieties which are referred to the Deptford Onion.

Ognon Rouge de Castillon.—A handsome red flat Onion of large size, which is brought to Bordeaux in considerable quantities in autumn. It is tolerably like the *Mézières Onion*, but is often larger—more about the size of the Flat Tripoli. Like most large tender-fleshed Onions, it keeps badly.

Chamois Glatte Wiener Zwiebel.—A handsome coppery pink variety, with a fine neck and somewhat irregular shape. The Zittau Giant Onion appears to be an improved form of it.



Como Flat Yellow Onion.

O. Paille de Château-Renard.—The bulb of this variety is more of a coppery or salmon colour than a true yellow, which its name would appear to indicate. It bears a great resemblance to the Lescure Onion.

Como Flat Yellow Onion.—A small handsome Onion, coppery yellow in colour, with very thin silky outer coats; the bulb is very flat, less than an inch in diameter. It is much grown near Como, in Lombardy. It is a quick grower and keeps well. It is sold during the winter in long hanks like the Straw-coloured Vertus Onion.

Deptford, or Essex, Onion.—This variety is very closely allied to the Straw-coloured Vertus, but is a little redder in colour and usually less in diameter. It is a productive and pretty early kind, and keeps well. The general practice is to sow it in spring; but it is often grown from small bulbs raised in the previous year from thick sowings. These small bulbs form an important article of commerce under the name of Mulhouse Onions. The Brown Spanish, or Oporto, Onion is also frequently grown in the same way.

Mulhouse Onion.

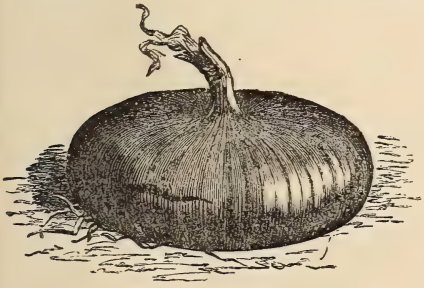
Extra Early Flat Red Onion.—An American variety. Bulb very flat, of the same size and earliness as the Early White Silver-skinned Onion, but dark red tinged with violet. It is a very distinct kind, and bulbs remarkably early.

O. Géant de Garganus Blanc.—Corresponding to the American *Mammoth Silver King*. An Italian variety, in shape and earliness almost the same as the Paris Silver-skin Onion, but larger in size.

O. Géant de Garganus Rouge.—Corresponding to the American *Mammoth Pompeii Onion*. A very large onion, deep red in colour, related to O. de Gênes.

Ognon de Gênes.—Bulb red, of medium size, often splitting into several cloves. It is earlier and smaller than the Blood-red Flat Italian Onion.

Large Yellow Dutch Onion.—An American variety. Bulb yellow, of medium size, nearly the same shape as that of the Straw-coloured Vertus Onion, but of a more coppery colour, like that of the Danvers Onion.



Bright Red Mézières Onion.

Yellow Lescure Onion.—A handsome kind, much grown in the vicinity of Toulouse, and all through Languedoc. It is chiefly adapted for sowing in autumn. The bulb somewhat resembles that of the Niort Pale Red Onion, but is not so flat, and its colour is much more of a yellow or coppery tinge.

Bright Red Mézières Onion.—Bulb flat, very broad, sometimes 4 or 5 in. across, and about 2 in. thick, of a fine intense red colour,

slightly tinged with purple on the inner coats; neck rather stout; leaves large, numerous, erect, and dark green in colour. A very handsome and exceedingly productive variety. It keeps well, and is very suitable for sowing in spring.

Ognon Monteragone.—An Italian variety. Bulb medium-sized, thickish, with a coppery red skin, and rather like that of the Strasburg Onion.

Naseby Mammoth, Nuneham Park, and **Improved Reading Onion.**—These three varieties are so like one another that they may be considered identical. They are a form of the White Spanish Onion with the bulb thicker and somewhat darker coloured than that of the ordinary variety.

Nürnberger Zwiebel.—A German variety of the Common Pale Red Onion, from which it is distinguished by the smallness of the bulbs, which are also somewhat firmer and better shaped.

O. de Puyrégner, or **O. Rouge Rosé d' Angers.**—In Anjou this variety is considered different from the Niort Pale Red Onion. We mention it here merely to state this, as from all the comparative trials we have made with it, it appears to us to be exactly the same.

Red Globe Onion.—An American variety, apparently only a spherical-bulbed form of the Wethersfield Onion.

O. Rouge Monstre.—A kind of Tripoli Onion, intermediate in shape between the Globe and the Flat varieties, and of a very decided red colour.

Yellow Russian Onion.—An exceedingly distinct kind. Bulbs rather small and thick, with the fault of frequently splitting into cloves, but still keeping better than any other kind. We have seen bulbs of this variety which were gathered in autumn keeping good for use until September of the following year. The outer skin is very leathery; it is of a coppery colour, like that of the Strasburg Onion, but with age becomes as brown as the skin of a Tulip bulb.

O. Brun de Saint-Laurent.—Of Italian origin, bulbs top-shaped, almost flat, copper-yellow, tending to brown. A vigorous late variety.

O. Rouge de Salon.—A southern variety, with a large but rather soft bulb, like that of the Tripoli Onions. In colour it quite resembles the Blood-red Flat Italian Onion, but it is notably thicker.

O. de Ténériffe.—A very distinct small-sized variety, with a very flat bulb of a grayish pink colour. This is the earliest of all varieties next to the New Queen Onion, being even some days earlier than the Early White Nocera. It may be here remarked that in sowings of the last-named variety some coloured bulbs are almost always found which bear a marked resemblance to the Ténériffe Onion.

O. Rouge Pâle de Tournon.—A very handsome, pink-tinged, yellow Onion, of rather large size, flat, and early. It greatly resembles the *O. Jaune de Lescure* mentioned above.

Two-bladed Onion.—A very early small-sized kind, copper-red in colour, with a fine neck, almost sunk in the bulb. When this variety comes true from seed, most of the plants have only two or three leaves each, from which peculiarity it takes its name.

O. de Vaugirard.—This name is sometimes given to a somewhat earlier form of the Early Paris Silver-skinned Onion, but the variety is not well established nor very constant.

O. de Villefranche.—A handsome, medium-sized, very flat, and fine-necked variety, yellow pink or salmon colour. It is an early kind, keeps well, and is not unlike the Lescure Onion.

Wethersfield Onion.—A very handsome American variety, with a very smooth, clean-skinned bulb, almost spherical, or slightly flattened at the ends. In shape and size it comes very near the Danvers Yellow Onion, and, like that variety, has an exceedingly fine neck ; but it differs entirely from it in colour, being of a bright red, like the *Mézières Onion.* The leaves are slender, long, and of a clear green colour. This a half-early kind, and keeps well. In its original form the bulb was quite spherical, but at the present day it is seldom found, even in America, without having the ends somewhat flattened, and wherever the primitive form occurs it is known as the Large Red Globe Onion.

White Globe Onion.—Under this name is grown in England a variety with a spherical bulb of the colour of the White Spanish Onion—that is, a pale or greenish yellow. It is important not to confound this variety with the Globe Silver-skinned Onion, which is really white.

WELSH ONION, or CIBOULE

Allium fistulosum, L. *Liliaceæ.*

French, Ciboule. *German,* Schnittzwiebel. *Flemish,* Pijplook. *Dutch,* Bieslook. *Danish,* Purlog. *Italian,* Cipolleta. *Spanish,* Cebolleta. *Portuguese,* Cebolinha.

Native of Siberia or the East.—Perennial, but cultivated as an annual or biennial.—A plant very closely allied to the Common Onion in its botanical characteristics, although it does not form a bulb, properly so called, but only a small enlargement at the base of each shoot. Leaves numerous, hollow, rather dark green in colour, somewhat glaucous, and 10 to 14 in. long. In the second year the flower-stem makes its appearance and grows about 20 in. high ; it is swollen about the middle and terminates in a spherical cluster of flowers like those of the Common Onion.

CULTURE.—The plant may be propagated by division, as each of the stems which are swollen at the base will speedily produce

a new tuft ; but, as it seeds abundantly, and the plants are apt to suffer in a severe winter, it is most usually raised from seed in preference. The soil should be good, and both well manured and well dug. The seed is sown, where the plants are to stand, from February to April or May. The only attention afterwards required is to water the plants and keep the beds free from weeds, as with Onions. In three months' time after sowing, the first cuttings of the leaves for use may be made.

USES.—The leaves, which have a strong Oniony flavour, are used for seasoning.

Common, or **French Red, Welsh Onion,** or **Ciboule.**—Bulbs or enlargements very long, coppery red, and covered with dry membranes, like the outer coats of the Common Onion, which also cover the bases of the leaves for some distance above ground; seed black, angular, flattened, and concave on one of the sides or faces, and quite like the seed of the Common Onion. Its germinating power lasts for two or three years. This is the variety which is most commonly grown. It is productive and comparatively hardy.

Common Welsh Onion, or Ciboule ($\frac{1}{8}$ natural size; detached stem, $\frac{1}{4}$ natural size).

Early White, or **English, Welsh Onion.**—A very distinct variety, having the bulbs or enlargements shorter than those of the preceding or ordinary kind, and with pinkish white coats, silvery white above ground. Leaves short and stiff, dark glaucous green, not so strong to taste as those of the ordinary kind, and more delicate in flavour. The seed also is smaller. Its germinating power continues for the same length of time. This variety appears to be sensitive to cold. In winter it loses its leaves entirely, but sends out new ones early in spring.

PERENNIAL WELSH ONION

Allium lusitanicum, Lamk. *Liliaceæ.*

Ciboule vivace.

Bulbs numerous, very long, a rather deep red-brown, attached to a common disc at the base ; leaves a very glaucous green, stiff, thick, and numerous. The plant sometimes produces flower-stems, which terminate in a globular cluster of pale violet-coloured flowers

yielding no seed. This Onion is always multiplied by division of the tufts, and with this exception its culture is exactly similar to that of the ordinary variety.

ORACHE

Atriplex hortensis, L. *Chenopodiaceæ.*

French, Arroche. *German*, Gartenmelde. *Flemish* and *Dutch*, Melde. *Italian*, Atreplice. *Spanish*, Armuelle. *Portuguese*, Armolas.

Native of Tartary.—Annual.—A plant with broad, arrow-shaped, slightly crimped, soft, pliable leaves. Stems 5 to 6½ ft. high, angular, and furrowed; flowers apetalous, very small, green or red, according to the variety; seed flat, russet-coloured, surrounded by a leafy membrane of a light yellow colour. The plant also produces some seeds, which are black, small, and disc-shaped, without any membranous appendage. These are not always fertile. Their germinating power lasts for six years.

CULTURE.—The seed is sown, where the plants are to stand, in the open ground in the beginning of March, usually in drills. When the seedlings have made three or four leaves, they should be thinned out, after which they require no further attention, except occasional watering in very dry weather. The plants bear hot weather pretty well, but soon run to seed, on which account it is advisable to make successional sowings from month to month.

White or Yellow Orache.

USES.—The leaves are eaten boiled, like Spinach or Sorrel, and are often mixed with the latter to modify its acidity.

The following are the three principal kinds of Orache which are most commonly cultivated in France:—

White Orache.—This variety is more commonly grown than any other kind. The leaves are a very pale green, almost yellow.

Dark Red Orache.—The stems and leaves of this variety are of a dark red colour, which gives it a very distinct appearance. The red colour disappears in cooking.

Green Orache, or **Lee's Giant Orache.**—A very vigorous kind, with a stout, angular, branching stem. The leaves are rounder and less toothed than those of the White variety, from which they differ also in being dark green.

There is also a variety grown which has pale red or copper-coloured leaves. This, however, does not possess any special merit.

Within the last few years some persons have spoken very highly of *Chenopodium auricomum*, Lindley—a tall, branching plant with rather small leaves. This does not appear to be in any way superior to the Common Garden Orache, except perhaps for warm climates.

SPANISH OYSTER PLANT.—See Thistle, Golden

VEGETABLE OYSTER.—See Salsafy

PARSLEY

Apium Petroselinum, L.; *Petroselinum sativum*, Hoffm. *Umbelliferæ.*

French, Persil. *German*, Petersilie. *Flemish* and *Dutch*, Pieterselie. *Danish*, Petersilje. *Italian*, Prezzemolo. *Spanish*, Perejil. *Portuguese*, Salsa.

Native of Sardinia.—Biennial.—During the first year of its growth the Parsley-plant only forms a more or less full rosette of long-stalked leaves, which are two or three times divided, and dark green in colour; the divisions are toothed, more or less entire, or, in some varieties, finely cut. The flower-stem, which does not appear until the second year, is erect, branching, furrowed, and from 2 to over 2½ ft. high. Flowers small, greenish blue in colour, in terminal umbels; seeds three-sided, grey or light brown, flat on two sides and convex on the third, where they are marked with five prominent ribs. They are strongly aromatic, like all the other parts of the plant. Their germinating power lasts for three years at least.

CULTURE.—The seed may be sown in the open air, from March to August or September, either on the edges of beds containing other plants or in separate beds, in drills 10 or 12 in. apart. It is usually rather slow in germinating, seldom doing so in less than a month. If the seedlings are properly thinned, and the beds kept free from weeds and frequently watered, some leaves will be fit to cut in about three months after sowing. It is a good plan to cut only the best-grown leaves one by one, as Sorrel leaves are gathered, as when this is done the plants yield a more prolonged supply than when whole tufts are cut off at once. As Parsley is somewhat sensitive to cold, it is advisable, in order to keep up the supply in winter, to put a frame over a bed in full bearing, choosing, if possible, one containing young plants which were sown about August. Old well-established plants also might be taken up and forced in a plant-house or a hot-bed, in the same way as Asparagus stools.

Simple as the matter is to many, others find it difficult to secure a constant supply of good Parsley, owing to haphazard ways of sowing and to subsequent neglect. The following extracts from *Gardening*, written in reply to a question on the subject, furnish good general cultural directions :

"An open plot should be selected, but it should be protected from the northern and eastern winter's blast. This should be trenched, or at least deeply dug, and liberally manured. The seed should be sown the first week in June, so that the plants may get large and strong before winter sets in. When the seedlings are large enough, they should be thinned out to at least a foot apart each way. I should have stated that, as the plants grow but slowly in winter, a much larger piece of land must be sown than would be required for a summer's supply. It would be advisable to make a sowing in a pit or frame for use when frost and snow are on the ground; or if four short stakes were driven into the ground, and connected with cross-pieces, so as to be in readiness for laying boards, faggots, or wattle hurdles across on the approach of hard frost, the same end would be attained. A sowing should be made in July for late spring use. March is the time to sow for a summer supply. Sometimes failure ensues, not from defective cultivation, but because the young seedlings are destroyed by vermin as soon as they appear; or, as is often the case, as the seeds must not be buried deep, and are a considerable time germinating, when dry weather sets in after sowing, the seeds perish. To guard against failure from either of these causes, at the same time the seeds are sown in the open ground some should be sown in a box or pan, so that should failure arise in the first instance, there would be a supply of young seedlings that could be potted into small pots. These young plants, when ready, should be put out in the ground where the seeds failed to germinate. It is safer to shift the young seedlings into small pots than to prick them into boxes, because when, in the latter case, they are taken up with balls of earth and put into the ground, the injury done to the roots in the operation causes flagging, and makes the plants very palatable to slugs. Nor is the potting so formidable a matter as to some it might appear. Old potting stuff or common garden soil would do for the purpose, and a man of ordinary quickness would pot off a hundred plants in an hour."—L. C. R.

"Sow thinly in March and again at the end of July for succession on land that has been heavily manured for the previous crop, and which should be deeply trenched. Sow in beds broadcast when the ground is dry, and well tread in. By doing so, some of the seeds will be in the exact depth to germinate freely and make nice healthy plants, which should be left when thinning out, say 12 in. apart if large specimens are required. A slight dressing of soot will be of service when plants are thinned, which put on when damp. If your soil is light in texture, well roll or tread, as I find Parsley does well with me on light soil when ground is so treated."—E. T. P.

"In preparing a Parsley bed, the soil should be removed to the depth of 6 or 8 in., and filled in with stones, brick-rubbish, and similar loose material; on the top a good depth of rich soil should be placed, which should be raised above the

level of the ground. Sow at the end of May seed of the most early variety. If the weather continues dry, water frequently until the plants are up, which will be in five or six weeks. When large enough, thin them out to 4 or 5 in. apart. Parsley when well up requires very little water; the roots should be kept in a rather dry state."—A. N.

"It is thought that Parsley will grow anywhere, but I have found that in some classes of soil the roots are attacked by canker of some kind. The main stem has a rusty appearance, and many of the fibrous roots decay. You should work the ground to the depth of a foot, giving it a good dressing of rotten stable manure. Sow the seeds in March. To make sure of Parsley in winter, the leaves must be cut off about the first week in September; this will be the cause of a sturdy late autumn growth, which will stand best through the winter."—J. D. E.

MARKET-GARDEN CULTURE.—Parsley is grown to a large extent in some market-gardens about London, whilst in others none can be found. The seed is sown in successional batches from March to August in rich soil, and generally where the plants are to remain, transplantation being considered detrimental to its producing good foliage; it also induces the plants to run to seed sooner than they otherwise would do. When up, the young plants are thinned out to a proper distance apart by means of hoes, and some growers protect a large bed of it during winter; but, as a rule, this kind of treatment is not considered sufficiently remunerative to be carried out on a large scale.

USES.—The leaves, which are aromatic, are much used, raw, fried or boiled, for flavouring, garnishing, etc.

Common, or Plain, Parsley.—The characteristics of this plant being exactly the same as those of the typical species described above, we need not repeat them here, and shall merely observe with respect to this form of Parsley that it is the only one that might be easily confounded with Fool's Parsley (*Æthusa Cynapium*, L.), a native and virulently poisonous plant. The leaves of the two plants are so much alike that even a practical gardener cannot distinguish one from the other with certainty unless he tests them by taste and smell. When Parsley is grown for flavouring sauces, etc., every care should be taken to prevent a poisonous plant being mistaken for it. This could be done most effectually and easily by making it a rule never to grow any kind except the Curled-leaved

Common, or Plain, Parsley (⅛ natural size).

or Fern-leaved varieties, which are quite as good for flavouring as the Common Parsley, and much better for garnishing. As these kinds do not seed very plentifully, and require some care to keep the varieties pure, the seed is rather dearer than that of the Common Parsley, but so little of it is sufficient for a garden, and the perfect security from danger which is ensured by growing only these kinds is so precious, that the matter of cost is really hardly worth mentioning.

Double-curled Parsley.—In this variety, the divisions of the leaves are rather deeply cut, and each of the small segments thus formed is more or less turned back on the upper side, giving the whole leaf a crisped or curled appearance which has a rather pleasing effect.

In some forms of Curled Parsley, the segments of the leaf are turned back so much as to show almost the whole of the underside, which is of a paler and grayer green than the upper side. Of this kind are the forms known as the *Windsor Curled Parsley* and *Smith's Curled Parsley*. These kinds are not so pleasing in appearance as the Common Curled Parsley, as their leaves always have something of the look of being blemished or diseased.

Champion Moss-curled Parsley.—Resembles the Double-curled Parsley, and, like the latter, is easily told from all wild plants of the *Umbelliferæ* tribe. Its dark green colour makes it useful for garnishing.

Double-curled Dwarf Parsley ($\frac{1}{6}$ natural size).

Double-curled Dwarf Parsley.—A sub-variety of Curled Parsley, remarkable for the fineness of the cutting and the great number of the divisions of the leaves. The segments touch one another, and give the leaf the appearance of a piece of very dense Moss. In this form the leaf-stalks are exceedingly short, so that the leaves almost lie upon the ground, forming a very low thick tuft. This is the best Parsley of all to use for decorative purposes, and for garnishing dishes. It is also quite as aromatic as the other kinds.

Fern-leaved Parsley.—In this variety the leaves are not curled, but are divided into a very great number of small thread-like segments, giving to the whole plant a very light and graceful appearance.

The plant is also distinguished by the very dark green colour of the leaves. It is one of the most difficult kinds to preserve quite pure.

Hamburgh, Large-rooted, or **Turnip-rooted Parsley.**—In this kind of Parsley it is not the leaves, but the thick fleshy roots, which form the edible part of the plant. These roots, which are of a dingy white colour, and almost like Parsnip roots, often grow 6 in. long, with a diameter of 2 in. in the thickest part, which is usually close to the neck. The flesh is white and somewhat dry. In flavour it resembles the Celeriac, or Turnip-rooted Celery, but is not so delicate. The leaves are exactly like those of the Common Parsley. In Germany, where this plant is rather extensively cultivated, there are two varieties grown, viz. a late one, which has long slender roots, and an early one, the roots of which are shorter and thicker. These varieties do not appear to us to be very constant, and the difference in the weight of their respective produce is rather slight.

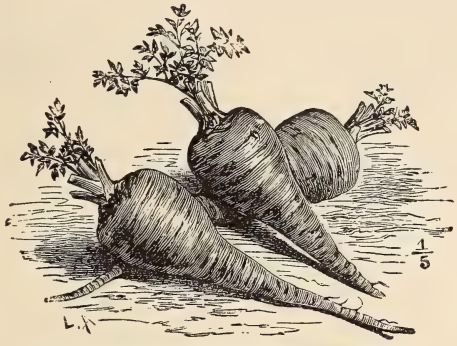
Fern-leaved Parsley ($\frac{1}{6}$ natural size).

Late Hamburgh Parsley ($\frac{1}{6}$ natural size).

The early or thick-rooted variety is grown like the Parsnip. The seed is sown immediately after winter in well-dug soil, and the roots may commence to be gathered in September. They are not affected by frost, and may be left in the ground until it arrives. This plant is not one of the old-fashioned vegetables,

but, like the Bulbous-rooted Chervil, was taken in hand and introduced into cultivation at a comparatively recent date.

Amongst plants which are not yet in cultivation, and especially amongst the biennial Umbelliferous plants, it might be possible to bring some of them to produce fleshy roots of sufficient size to form useful vegetables. The result of one experiment which was undertaken by us for a purely scientific purpose confirms this opinion. The Beaked Parsley (*Anthriscus sylvestris*, L.), a wild plant of our woods, at the end of ten years' repeated sowings and methodical selection, produced in some sowings a proportion of one-half or more of simple, clean-skinned, fusiform roots, as regular in shape as the best roots of the Hamburgh Parsley. Now, in the wild state the root of this plant is as forked and divided as that of the Celery. The progress made, therefore, was considerable, and it is to be observed that the plants thus improved represented only the fifth generation from the wild plant, as the *Anthriscus*, being a biennial, does not seed until the second year.



Early Hamburgh Parsley ($\frac{1}{5}$ natural size).

PARSNIPS

Pastinaca sativa, L. *Umbelliferæ.*

French, Panais. *German*, Pastinake. *Flemish* and *Dutch*, Pastenaak. *Danish*, Pastinak. *Italian*, Pastinaca. *Spanish*, Chirivia. *Portuguese*, Pastinaga.

Native of Europe.—Biennial.—Root a very long tap, white, swollen, and fleshy; radical leaves divided, as far as the midrib, into irregular toothed segments; leaf-stalks overlapping, and often violet-coloured at the base; stem hollow, furrowed, branching, bearing at the extremity broad umbels of green flowers, succeeded by flat, almost circular seeds, which are winged at the margin, light brown, and marked with five raised lines or ridges. The germinating power of the seeds lasts for two years.

CULTURE.—Parsnips are grown in the same manner as Carrots, only they may be sown earlier in the year—about the end of February or early in March. The seed cannot always be depended on for germinating, and, in dry climates often

fails to do so, from the want of atmospheric moisture. Being a very hardy plant, the crop may be left in the ground until late in autumn, or even all through the winter, and taken up as the roots are required.

Soil.—Although the Parsnip will grow in almost any kind of soil, it succeeds best in land that is neither over-light and sandy on the one hand, nor too heavy and adhesive on the other. The form of the root, penetrating as it does for a considerable distance straight down, at once shows the necessity for a sufficient depth of soil to admit of its extending; consequently the ground should be well and deeply dug, so as to readily allow its descent whilst the root is young and delicate. The soil should be moderately rich for Parsnips to grow to a large size, in which condition they are quite different, both in flavour and texture, from the stunted, starved productions resulting from poor hungry land and negligent cultivation. But although the Parsnip likes to be well nourished, it is not advisable to grow it in land that has immediately before received a heavy dressing of manure, as the roots are then liable to be cankered or affected with grub. It is best to grow it after some other crop that has been well manured, such as Onions, Cauliflowers, or Lettuce, trenching or deeply digging the ground over in the autumn, and leaving it as rough as possible on the surface. Should the soil not be suitable for the crop on account of its poverty, some manure ought to be added in the autumn, which will be much better than adding it at the time of sowing, mixing it regularly with the soil as the work proceeds.

Sowing and Thinning.—About the middle or latter end of March, according as the locality may be early or late, as soon as the land is sufficiently dry, let it be well forked, reducing all the hard lumps that exist—not merely making it smooth on the surface, but quite as deep as the fork or spade goes. This is necessary for most plants, but particularly so for Parsnips, or the roots are liable to grow forked. With this, as with all other spring-sown crops, never be guided by a certain date, even to a week, in the time of sowing, if the state of the land be such as not to favour the sowing of the seed; it is always better to wait than sow when the soil is too wet—the effect of which is that it does not germinate freely, and the land gets compressed and never works kindly throughout the whole season. Sow in drills 1 in. deep, and from 15 to 18 in. apart, according to the more or less rich condition of the land. All that is afterwards required is timely thinning, leaving the plants 10 or 12 in. apart in the rows, and the careful destruction of weeds by frequent hoeings throughout the season.

Storing.—Many take up the roots towards the end of October and store them in sand or ashes; but they are much better if left in the ground, as not liable to get spongy or strong flavoured, which they sometimes do when stored under cover. If the ground occupied by the crop is required for other purposes, the roots may be dug up and stuck in mounds or clamps, in the same manner as Potatoes, or a deep trench may be dug and the roots placed perpendicularly in it close together, afterwards covering them over with soil to a depth of 6 in.

In the London market-gardens, Parsnips are always sown as soon after the middle of February as possible, provided the ground is moderately dry and warm, and crumbles freely with the fork. Preparatory to sowing, the ground is levelled, and the soil well broken in the operation, and finished off by raking the surface smooth with a wooden rake. Shallow drills are then drawn for the seeds at about 18 or 20 in. apart; and after being sown they are covered in by the feet or the back of a rake, and the whole is smoothly rolled. Sometimes white or green Cos Lettuces have been planted in rows at those distances, and the Parsnips sown in lines between them. In either case, Lettuces are planted—if not first, they are put in afterwards; and as the Parsnips take a long time to germinate, the Lettuces are removed before they can injure them. As soon as the Parsnips are fairly up and growing, they are thinned out a little, and when well established, they are finally thinned to 9 in. apart. The Lettuces, when marketable, are tied up and removed before they can choke or otherwise injure the Parsnips, which afterwards soon grow rapidly, no further care than occasional hoeing being then bestowed upon them. The bulk of roots per acre is enormous, many of the specimens measuring individually 7 and 8 in. in diameter at the shoulder, and 20 to 24 in. in length. The variety grown in market-gardens is the Hollow-crown, a capital sort that produces roots from 4 to 6 in. in diameter at top, and from 10 to 20 in. in length; and the crowns are, as a rule, buried a little below the surface soil. Parsnips are not brought to market much before November, unless the demand for them is great and prices high. But from that time until the middle of February they are in fine marketable condition, and, being always left in the land where they grow, are lifted as required. Being thus left undisturbed, they preserve their flavour much better than they do when lifted and stored in pits.

USES.—The roots are boiled, and are often used for flavouring broth or soup without being eaten. They also form an excellent food for horses, and are extensively used for that purpose in districts where Parsnips are easily and successfully grown, as in Brittany.

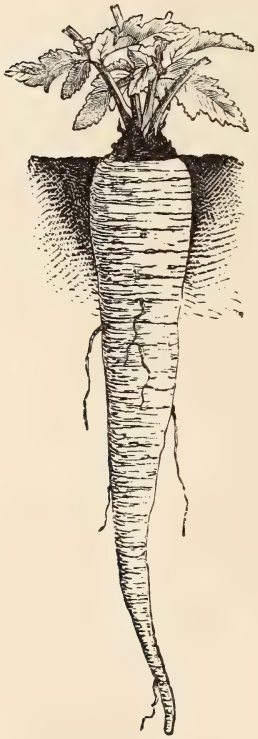
Long Parsnip.—This form, which comes the nearest to the Wild Parsnip, is now very little grown. It is characterised by having a very long root, often 16 in. in length, deeply sunk in the ground, and an elongated conical neck.

The Improved Brest Parsnip is a thicker and shorter form of the old Long Parsnip. It also has a conical neck and a wrinkled skin. It has the advantage of being productive, while the roots are more easily pulled than those of the old variety; however, the following kind is far superior to it.

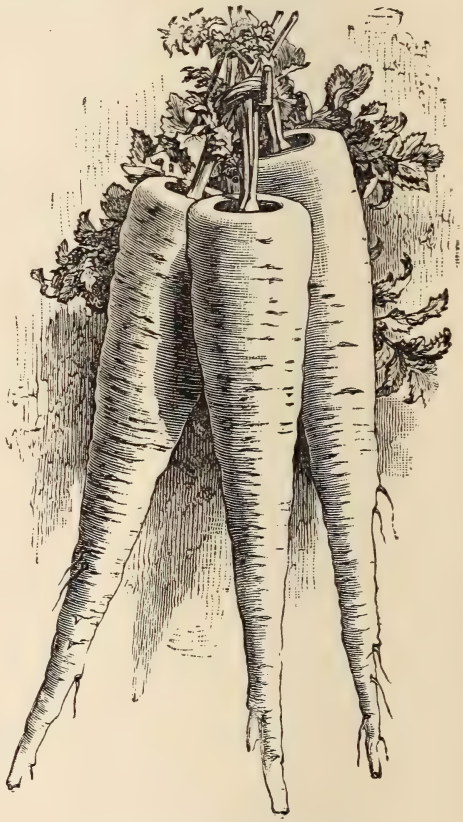
Long Smooth Hollow-crown Parsnip.—A fine strain, sometimes confounded with the Half-long Hollow-crown, or Student, Parsnip, but quite distinct from it, requiring a deeper soil and being

also more productive. The full-grown roots are 15 in. in length, with a diameter of 6 or 7 in. at the top. The leaves grow out of a groove surrounded by a raised circular ring on the root. The skin is much whiter and smoother than that of the Long Parsnip.

Half-long Hollow-crown, or Student, Parsnip.—Root handsome, long, thick, very clean skinned, with a fine neck encircled by



Long Parsnip.

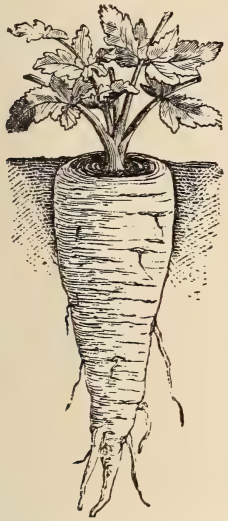


Long Smooth Hollow-crown Parsnip.

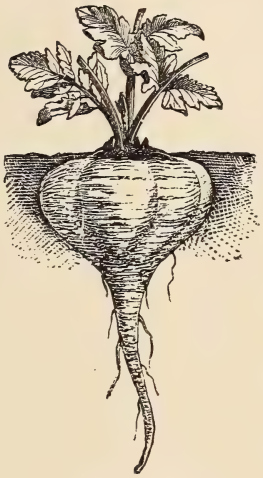
a grooved depression, from the centre of which the leaves issue, the root being swollen all round it. The root is generally only about three or four times as long as broad, and has a smooth white skin, whereas that of the Common Long Parsnip is wrinkled and furrowed. It is an excellent and very productive variety. The leaves also of the Hollow-crown Parsnip are much smaller and fewer for the size of the root. There is as great a difference between this variety and the Common Long Parsnip as there is

between a variety that has been modified and improved by cultivation and one that is almost wild.

The English variety, Sutton's Student, is a superior-flavoured local form of it, and Elcombe's Improved is a first-class variety, of excellent flavour. Although it is both large enough and hardy enough to be grown for cattle-feeding, the Hollow-crown Parsnip is



Half-long Hollow-crown, or Student, Parsnip.



Round Parsnip.

essentially a table vegetable, and as such it is chiefly cultivated. It is not quite so early as the Round Parsnip, but is more productive.

Round Parsnip.—Root top-shaped, broader than long, often 5 or 6 in. across and 3 or 4 in. in depth. The leaves of this variety are fewer and slighter than those of the Long Parsnips; the root also swells much sooner. It is the best kind for kitchen-garden culture.

PATIENCE DOCK, or HERB PATIENCE

Rumex Patientia, L. *Polygonaceæ.*

French, Oseille épinard. *German*, Englischer Spinat. *Flemish*, Blijvende spinazie. *Danish*, Engelsk Spinat. *Italian*, Lapazio. *Spanish*, Romaza. *Portuguese*, Labaça.

Native of Southern Europe.—Perennial.—Leaves slender, flat, oval-lanceolate, pointed, narrowed abruptly into the leaf-stalk, which is long and channelled on the upper surface; stem 4 to 6½ ft. high, with ascending branches; flowers in thick clusters, forming a rather close branching panicle at the top of the stem; seed triangular, pale brown, much larger than that of the Common Sorrel. Its

germinating power lasts for four years. This species is not so acid as the other kinds of Sorrel; it is exceedingly productive,

Patience Dock, or Garden Patience.

and yields a supply of leaves immediately after winter, ten or twelve days, at least, before any other kind. It is grown exactly like the Common Sorrel.

PEAS

Pisum sativum, D.C. *Leguminosæ.*

French, Pois. *German*, Erbse. *Flemish* and *Dutch*, Erwt. *Danish*, Havecært. *Italian*, Pisello. *Spanish*, Guisante. *Portuguese*, Ervilha.

The Pea is an annual plant, of uncertain origin, but probably a native of Central Europe or the mountainous region of Western Asia, as it is hardy enough to withstand the winter generally in the climate of Paris. The cultivated Pea has slender hollow stems which require some support to enable them to grow erect. The leaves are compound, pinnate without an odd one, the leaf-stalk terminating in several tendrils which take the place of the odd leaflet, and enable the plant to climb by attaching themselves to any object within their reach. The base of the leaf-stalk is surrounded by a very broad clasping stipule, which is larger than any of the leaflets. The flowers are produced in the axils of the leaves, commencing almost regularly at a certain height from the ground in each variety, either in pairs, or often solitary, and very rarely three together, at each joint of the stem. The market-

gardeners about Paris give the name of "*mailles*" to the flower-bearing joints of the Pea-stem, and when they want to describe a variety as one-flowered or two-flowered, they say that it "has one or two flowers to the '*maille*.'" The flowers are sometimes white, and sometimes violet-coloured, with the wings and keel of a darker shade than the standard. The varieties which have coloured flowers may be distinguished long before they come into bloom, by having a small reddish circle around the stem where it is clasped by the stipules.

The seeds of the violet-flowered Peas are always more or less tinged or spotted with brown. When boiled, they turn to an unattractive grayish colour, and have a rather strong rough flavour, in consequence of which they are not grown for shelling; only the edible-podded sorts are grown for table use. Varieties of Gray Peas which have tough leathery pods are only grown for feeding cattle.

Most of the varieties which are grown for table use have white flowers, and the seed also is white or green when ripe. The size and weight of the seed vary too much in the different varieties to permit us to treat of them here in a general manner, but we shall mention these matters in detail in the description of each variety. We shall only observe that the germinating power of the seed lasts good for three years, after which it speedily declines, although it is not unusual to find some seeds germinating well after seven or eight years. Wrinkled Peas usually do not germinate so well as the Smooth-skinned, or round, Peas, nor does their germinating power last so long.

Among the very numerous varieties of Peas, a distinction is made between those of which only the seeds, whether green or dried, are eaten, and which are termed Shelling Peas, and those of which the pods are eaten entire when the seeds are hardly formed in them; these are called Edible-podded, or Sugar, Peas.

Among the varieties of Shelling Peas, a distinction is made between the Smooth or Round-seeded and the Wrinkled kinds, the latter of which are now nearly as numerous as the others. And lastly, both the Edible-podded and the Shelling Peas are divided into the three classes of Tall, Half-dwarf, and Dwarf Peas (*Pois à Rames*, *P. Demi-Nains*, and *P. Nains*). All these differences, without taking into account the green or white colour of the seeds, have caused the cultivated varieties of Peas to be grouped into classes or sub-divisions, under which we shall describe each kind in succession.

CULTURE.*—The cultivation of Peas presents no great difficulty, and in the vicinity of Paris and other large towns it is carried on in the open fields on a large scale, and usually very profitably. The soil in which they are grown should be, as far as possible, well drained, rich, and of a medium consistence. The seed is sown in drills, from the middle of November to March. The Early Frame

* See also p. 765.

Pea (*Pois Michaux*) is the kind most used about Paris for sowing in autumn, on which account it has obtained the name of St. Catherine's Pea. These November sowings might also be very advantageously made in kitchen-gardens, in which case the seed should be sown in a border at the bottom of a wall with a south aspect. It is exceedingly early, very dwarf, takes up very little room, and there is no need to bend down its stems with laths or cross-bars, as was formerly done when, before its introduction, tall or half-dwarf varieties were grown in frames.

Successional sowings in the open air should be made all through the spring in order to ensure a continuous supply through the summer. After the early varieties, the next sowings consist of tall kinds, which are later, more productive, and less liable to suffer from mildew during hot weather. The Clamart Pea and the tall varieties of Wrinkled Peas are particularly good kinds for late sowings, the crop from which comes in at the end of summer or early in autumn.

In kitchen-gardens, tall Peas are staked with branches of trees, chestnut-loppings being mostly used for this purpose in the vicinity of Paris; but when grown in the open fields, they are seldom staked, on account of the cost of labour which the operation would involve. In the absence of stakes, the stems of the Peas are pinched off just above the fifth or sixth flower, after which they grow sufficiently stiff and firm to support themselves. This treatment, however, which answers very well for varieties of moderate height, such as the Michaux Peas, does not suit the tall kinds, such as the Tall Wrinkled Peas, and these, accordingly, are not employed for field culture.

When Peas are once well up and staked (if they require it), they need no further attention except occasional watering in dry weather. Transplanting is only practised with very early Peas, which are raised in pots in a plant-house or under frames, to be planted out as soon as winter is over, and its advantages are not quite certain.

With every suitable appliance the Pea season may extend from the beginning of July till the end of October, and I have, in exceptional seasons, gathered Peas as late as November 10th. But those Peas gathered early in May are grown under glass, and the very late Peas are, of course, mainly dependent upon the season. The best months for Peas are June and July. In warm situations the produce of the early south border begins to turn in about the end of May, and green Peas are common enough in June, but July is the month for excellent Marrow Peas. In August and September, unless the land is good and the treatment very liberal and first-rate in every respect, the Peas are very likely to fall away, and if they do not cease to bear, the pods lose their fresh green colour, and the peas in the pods are infested with maggots, and if mildew makes its appearance the chapter of ills is

complete. Most of these evils may be successfully combated, as I shall show presently. But we will begin with

The First-Early Peas.*—These, where glass can be had sufficient for our needs, will comprise several small supplies in pots of some approved dwarf kind, which should be sown in 8 in. pots in November, and be brought on steadily in a pit close to the glass with just the smallest amount of artificial warmth, as Peas do not force well in heat; and therefore it will not do to be impatient. A steady, regular growth, in a very light position, with a temperature never exceeding 45° to 50° at night, will be best. Ventilation must be given at every suitable opportunity. The first sowing in the open air may take place any time from the beginning of November till March, and the probabilities are that if the same kind of Peas be planted at both these extreme limits of time, there would not be more than ten days' difference in the time of gathering! But even then the week or ten days gained is thought much of. In cold, wet districts it is as well not to sow till after Christmas, as in such situations the early sown crops are not unfrequently cut off by cold winds. Very often the first early Peas are raised under glass, and when hardened planted out early in March. The seeds of a white round early Pea, such as Sangster's No. 1, are sown in pots or troughs, or on sods of turf, and placed in heat, where they soon germinate, when they are hardened off and planted on a warm south border the first week in March. A ridge of earth is drawn up on each side as a shelter, and a few evergreen boughs are added as a further protection.

Mr. Muir advises sowing early Peas in cold frames, and not in warmer houses or pits:—"I like a frame about 2 ft. deep better than any other structure in which to raise early Peas. Fill some hundreds of small 3 in. pots half full of soil, then put in ten or a dozen seeds, finish off with more soil, and place them in a frame covered with a good sash; they will soon germinate and make fine, sturdy, dark green-leaved plants, which may be planted out almost at any time without receiving the slightest check. If a batch were placed in a cold frame and another in a warm house at the same time, by April the frame ones would be by far the best as regards robustness and fertility. There is no better place than a cold frame in which to raise early Peas, and I would advise everybody, especially amateurs, to try Pea-growing in this way. No expense is incurred in getting them up or anxiety in getting them put out and hardened off, as by judicious air-giving on fine days they may be grown from the first in a most natural way, and induced to pod some weeks earlier than any grown wholly in the open ground." The second-early Peas may be sown at the same time as the early kinds, when these are not sown before the end of February.

Succession.—To keep up a regular succession, there should be frequent sowings; taking account of and giving due weight to the fact that all Peas sown during the months of January, February, and the first half of March will not vary more than a week or ten days at the time of turning in. There will not be much use in making successional sowings during these months. As a matter of fact, I have often sown at intervals of a fortnight or so in order to test the matter, and I have always found that to obtain a succession from first sowing the best plan is to sow at least three or four distinct sorts at the same time,

* See also p. 765.

including an early kind, a mid-season one, and a late variety. After April comes in sow the succeeding crop as the preceding one is just through the ground. The following dates may be taken as approximately correct. They are founded upon a good deal of experience and careful note-taking; and, making due allowance for the effect of latitude upon climate, and the variations of soil and seasons, may be safely acted upon. Early white round Peas, sown before Christmas, or not later than the first week in January, should be fit to gather the last week in May. Those of a second-early type, sown from the end of January to the end of February, should be fit to gather from June 10th to 20th; Huntingdonian and Telephone, sown from February 20th to March 10th, should be fit for use from June 20th to the middle of July, or later. Marrow Peas, such as Veitch's Perfection and Ne Plus Ultra, sown from middle to end of March, should be ready about the middle of July and onwards. The tall Marrows, sown first and third week in April and first and third week in May, should produce a supply from the middle of July till the close of the Pea season. But most people sow second-earlies once or twice in June, and I have had the late Marrows do well sown as late as the middle of June. As to the manner of planting:

THE LATE MARROW PEAS.*—The crop is so important that every expedient should be adopted which can in any way enable it to pass through its difficulties without much suffering. Men may be seen labouring heavily with watering-pots in a dry, hot time, when less than half the time and labour in preparatory work at the right season would have given more satisfactory results. Mark out the sites in January or February, open a trench, and fill in with a manurial compost—Peas dislike rank manure—of the usual decaying matters which accumulate about a garden, mixed with a proportion of manure from the stables or pigsty, with a little soot, etc.; blend the whole together and work into the trench, where the Peas will by-and-by be planted. When this is done early in the season, the added compost has become mellow and in a fit condition for the roots of the plants to work among at once. As much of the soil taken out of the trench may be thrown back and worked up with the compost as will fill the trench to the original level. The bottom of the trench will also be stirred up and incorporated. All the stations required for the late Peas should be got ready at the same time, and a stump driven down at the end of each row, so that when one wants to put in a row of Peas all he has to do is to place a line along the line of stumps, draw a drill about 3 in. deep, and plant the Peas.

SOWING AND GATHERING.†—The large Marrow Peas should be allowed room to branch out, not only below the surface, as the preparation of the site suggested above will provide for, but also above the ground, as must be provided for by thin planting. From 2 to 3 in. apart all over the drill will not be too much space to allow; and this will necessitate the careful distribution of the seeds individually by hand. In dry weather the drills should be soaked with water, and then covered with dry soil drawn from the drills. If mice are likely to be troublesome, dress the seeds with red lead, or else keep traps set in the neighbourhood of the Pea row. To do the late Peas justice the rows should be isolated,

* See also p. 766.

† See also p. 767.

with other dwarf crops between. Mulching with manure is a valuable expedient, and, in connection with a good preparation of the land at this season, should render watering, even in the driest weather, unnecessary. The mulch, which should consist of half-decayed stable manure, should be spread on both sides of the rows of Peas 18 in. or so wide and 3 or 4 in. thick. Gathering should be done carefully, and as soon as they are fit for use; and in many cases a second crop of young shoots and blossoms will put forth, and a second crop of Peas, which will be very useful, will be produced.

Tall and Dwarf Peas.*—Dwarf Peas are very useful where sticks or supports cannot easily be obtained; but where sticks do not cost much, for the main crop tall Peas are best, as they are more prolific. In the case of all Peas requiring support—and, if possible, all Peas, even those of dwarf habit, should be supported—the sticks should be placed to the rows early, and the tops of the sticks should be levelled with the shears, and the pieces cut off be used between the large sticks at the base, to prevent the plants straggling through, and to give them an upward tendency.

Nearly all market-gardeners near London grow Peas largely; and although French Peas are sent to market early in May, and sold at cheaper rates than English growers could afford to produce them, preference is always given to home-grown Peas, for which there is always a good demand until about September. Until the end of October, however, fine examples of the Ne Plus Ultra type may be obtained ready shelled in the market, the produce in many instances of the Surrey fields, Bedfordshire, Essex, and adjoining counties, from whence come the greater bulk of both early and mid-season Peas to Covent Garden. In making early sowings it is a practice with market-gardeners to choose a fine day to break down the ridges (the ground having been previously manured and cast into ridges), measure off the lines and draw drills in the forenoon, and to leave them open till the afternoon, so that the soil in them may dry a little, and become thereby warmer; then to sow the seeds and cover all up before the evening. The drills vary from 2 to 3½ ft. apart, according to the vigour of the sorts which are to be sown. In the close lines, Lettuces or Spinach are used as inter-crops, but in the more distant ones Cauliflower is the crop usually planted. In many instances, the first sowing of Peas is made in December on a warm border; but, considering that they must be sown a little deeper than in January, and the risks to which the seeds are liable from mice, birds, insects, and damp, it is a much-disputed point among good growers whether the December sowing has any advantage over that made in January, many contending that the produce of the latter is quite as early as that of the former, and the crop less subject to risks. Different growers have a preference for different kinds; but the early dwarf kinds are universally the most desired, on account of their quick returns, the small space they occupy, and because they require no stakes.

Peas are seldom staked in market-gardens, the haulm being allowed to lie on the ground. Gathering is a matter well attended to, as the oftener the pods are picked when full the longer do the plants continue to bear. Most market-gardeners save their own seed, and some grow Peas for seed only; in this case

* See also p. 767.

the haulm is frequently shifted from one side of the row to the other in order to prevent the pods from rotting, or from being destroyed by snails, and to expose them to the air and sun, and thus cause them all to ripen alike. When ripe, the haulm is pulled up and dried, and taken indoors to be cleared of its seed during wet weather.

USES.—The seeds are eaten boiled, either in the green or the dried state, and the young pods of the edible-podded kinds are used in the same way.

SHELLING PEAS

French, Pois à écosser. *German*, Schal-Erbsen. *Flemish* and *Dutch*, Dop erwten. *Danish*, Skalœrte. *Italian*, Piselli da sgranare. *Spanish*, Guisantes para desgranar. *Portuguese*, Ervilhas de grão.

I. Round or Smooth Peas

A. TALL CLIMBING VARIETIES

Tall Round or Smooth White-seeded Peas

First and Best, or **Prince Albert, Pea.**—Stem slender, 2 to over 2½ ft. high, commencing to flower at the fifth or sixth joint, and producing from six to eight tiers of pods; flowers usually

Prince Albert Pea.

Pods (natural size).

solitary, white, and of medium size; pods straight, about 2 in. long, somewhat square at the end, each containing from five to seven very round peas, which are slightly green or sometimes salmon-coloured when ripe. A peculiarity of this variety is that the flower, which makes its appearance lowest down on the stem, often withers without expanding, and sometimes, when it does open well, it is not until after the flower at the joint above it has come out. This variety is the earliest of all the kinds commonly grown in France. In England a sub-variety, named *Dillistone's Early*, is grown, which is three or four days earlier, but the plant is slenderer and less productive. The present variety is the best for an early crop in the open air.

Rural New Yorker Pea.—The American variety known under the above name comes so very near to the Albert Pea that it can scarcely be called a distinct variety. It flowers one or two days later than the Albert, but the pods are ready for use at the same time.

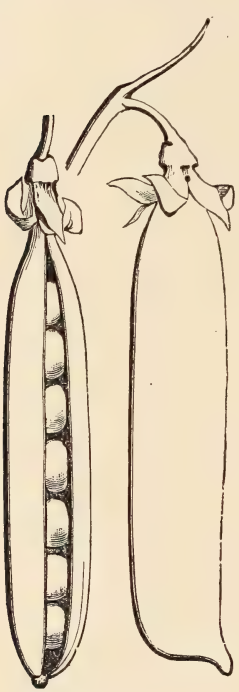
Lightning Pea.—A very early variety, 30 to 36 in. high, with rather slender single stem, podding close to the soil like all the earliest varieties. It resembles somewhat the Prince Albert Pea; and bears usually seven or eight tiers of solitary long-stalked flowers. The pods are 1½ to 2½ in. long, straight, rounded at the end, well filled, containing from six to eight round salmon-coloured peas.

Sangster's No. 1, or Improved Early Champion, Pea.—Probably the offspring of the First and Best, and somewhat larger and more productive, but not quite so early. It usually comes into flower two days later. It often produces the pods in pairs, and they are somewhat longer and broader than those of the preceding kind. The peas are white and round. This variety is very liable to degenerate, and it should be very carefully isolated, when grown for seed purposes, to keep it true. In the vicinity of Paris it is rather extensively grown for market supply. It is not so productive as the Early Emperor Pea, but has the advantage of coming in four or five days earlier.

Daniel O'Rourke Pea.—Stem 2 to 2½ ft. high; leaves somewhat larger, rounder, and lighter coloured than those of Sangster's No. 1; flowers white, rather large, solitary, commencing to appear at the sixth joint of the stem; pods somewhat longer and broader than those of Sangster's No. 1; peas rather large, becoming a greenish white or salmon-colour when ripe. This variety is quite as early as the preceding one, and about equally good. The two kinds are very closely allied, and are sometimes confused with each other, although a well-marked difference may be observed by any one who studies them carefully. The Daniel O'Rourke may be easily recognised by the stems terminating abruptly above a

leaf which is nearly as large as the others, instead of having at the end one or two small-sized leaves, as is usually the case in the two preceding varieties.

Very Early May Pea.—Resembles Caractacus, and flowers at the same time; is a little later and more productive. The pods are produced in pairs; and the stems are not above 3 ft. or so in height. They bear pods very low down, and have often as many as nine tiers of flowers. The pods are from 2½ to 3 in. in length,



Sangster's No. 1 Pea.

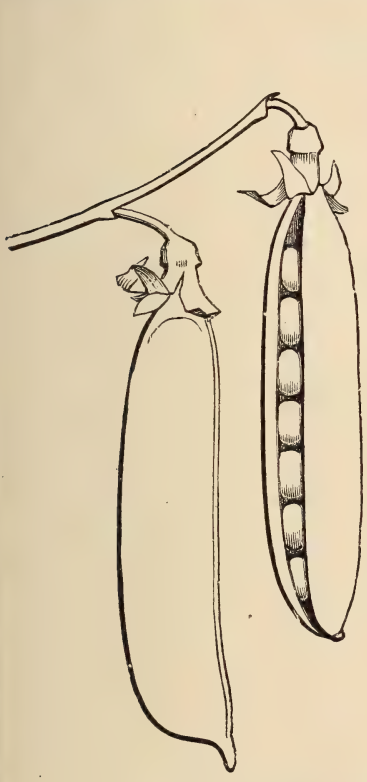
Daniel O'Rourke Pea.

straight, blunt at the ends, and contain six to eight small salmon-coloured seeds.

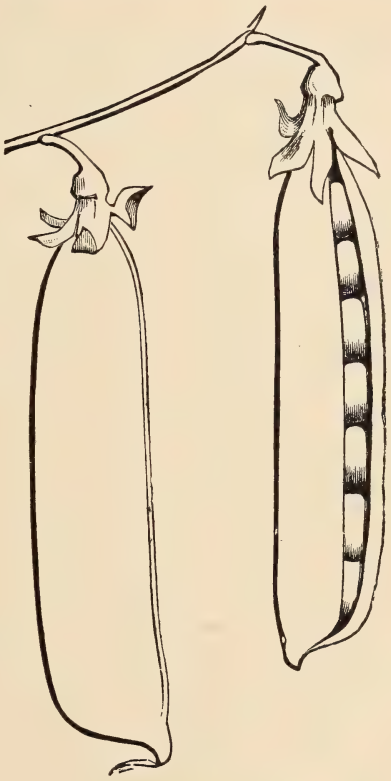
Emerald Gem Pea.—Stem 25 to 30 in. high, long and jointed, with medium-sized foliage, resembling that of Prince Albert Pea, but is a little larger, and besides, both in the stems and pods, has a peculiar glazed vivid green colour, without any of that glaucous, bluish appearance of the other Peas. The flowers are white, most often solitary. The pods are straight, with the same glazed look as the other parts. They contain from six to eight medium-sized round peas, sometimes slightly wrinkled and of a salmon tinged white colour when ripe.

In culture and productiveness it is strikingly like the three preceding varieties ; but owing to the peculiarity of colour above-mentioned is easily distinguished from all the other Peas.

Early Emperor, or **Double-blossomed, Frame Pea** (*Pois Michaux de Hollande*).—Stem something over 3 ft. in average height; leaves and stipules larger than those of Sangster's No. 1, and noticeably darker and more glaucous green in colour; flowers white,



Early Emperor Pea.



Ruelle Michaux Pea.

medium-sized, almost always in pairs, and commencing to bloom at about the eighth joint of the stem, which usually carries from six to eight tiers of them ; pods short, seldom over 2 in. in length, but very well filled, each containing eight or nine medium-sized nearly round peas, which become very white as they ripen. This variety is one of the most suitable for growing in the fields for market supply. It is early, very productive, and very hardy. In the neighbourhood of Paris it is not usually staked by those cultivators

who grow it on a large scale. They sow it in drills about 20 in. apart, and leave the plants to themselves. The tendrils of the leaves become intertwined, so that a whole drill is like one plant, and, should it incline to right or left, the stems turn and grow erect, mutually supporting one another. The flowers soon make their appearance, when the cultivators pinch the stems above the fifth or sixth flower. This forwards the growth of the first pods and increases their size. When stakes are scarce, the same might be done in kitchen-gardens.

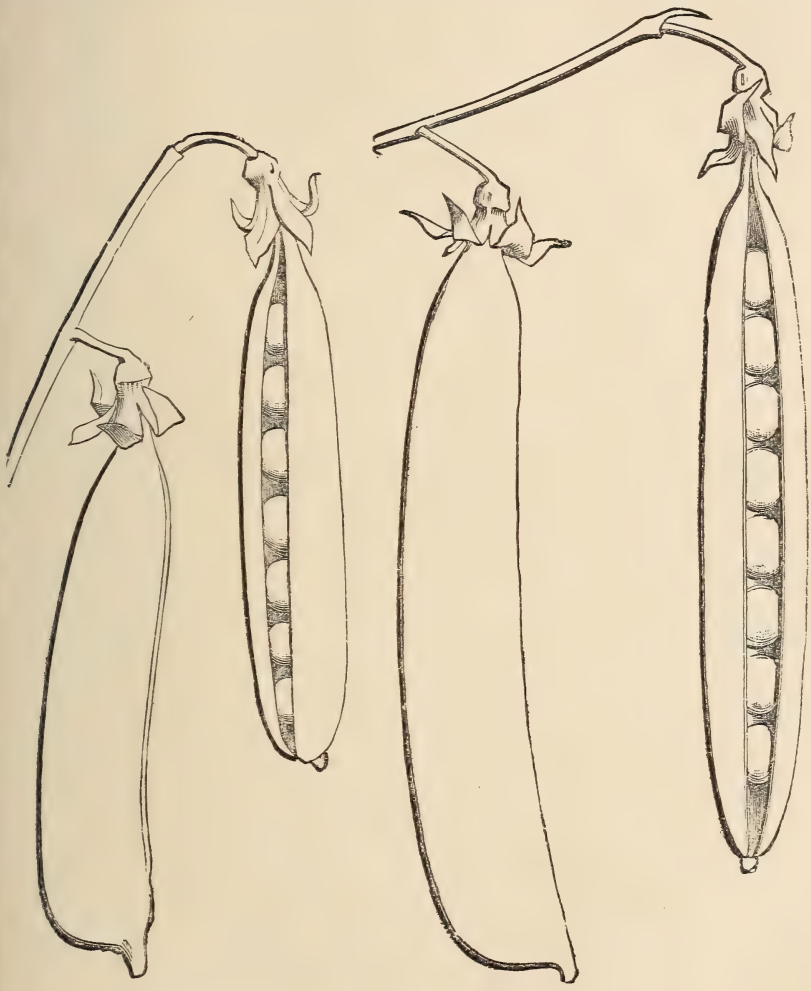
Ruelle Michaux Pea.—Stem usually simple, rather thick, 3 to 4 ft. high. The leaves and stipules are much larger than those of the preceding kind, and a lighter green. The flowers are very white, large, and often solitary. They begin to open at the ninth or tenth joint of the stem, which carries about ten tiers of them. Pod straight, broad, somewhat blunt at the end, and containing seven or eight white, round, large peas. This variety requires a little more attention, when growing, than the preceding one. Its peas are larger and handsomer, but it is not so early.

Early Frame Pea (*Pois Michaux Ordinaire*).—At first sight this variety does not seem to differ much from the Early Emperor. It might even be described as a sub-variety, which is hardier, a little earlier, and continues bearing for a longer time. The leaves are exactly like those of the Early Emperor, save that they are a little larger; but the flowers, which are always in pairs, do not commence to open before the tenth joint, and the stem carries twelve tiers of them. Pods straight, rather narrow and small, but very well filled; peas very round, white, slightly salmon colour, and of medium size. This variety is almost always branched; that is, it produces shoots from the axils of the leaves immediately under the first flowers, which soon flower themselves. These branches or secondary stems grow particularly strong when, from any cause, the main stem above them has been either wholly or partially destroyed, but they always produce fewer pods than the main stem.

Some years ago a variety was much grown, and still exists in certain localities, under the name of *White Branching Pea*. This comes very near the Early Frame Pea, but is especially remarkable for the vigorous growth of its secondary shoots, or branches, and their abundant and continuous yield of pods. If the Early Frame Pea, however, is sown rather thinly, and the pods are gathered as soon as they are fit for use, it will yield almost as abundantly and as long as the White Branching Pea.

Leopold II. Pea.—Stem usually simple, about 3 ft. high; leaflets and stipules pale green, finely spotted with gray, oval, and rather elongated; flowers white, almost always produced in pairs, and rarely commencing to open before the twelfth joint; there are

seldom more than six tiers of them on a stem; pods long, straight, pale green, each containing seven or eight white, very round, medium-sized peas. This variety comes into flower five or six



Early Frame Pea. Leopold II. Pea.

days after the Early Emperor Pea. A peculiarity of it is the rapidity with which the pods form and fill. It seldom flowers longer than a fortnight, and the pods are all gathered in about the same time, after which the plants may be cleared off and replaced by something else—a great advantage in market-garden culture.

Early Clamart Pea.—Stem 4 to 5 ft. high, generally branching above the first pods, which are produced at the tenth or twelfth joint. The pods are usually in pairs, and are preceded by very white medium-sized flowers. They are distinguished from the pods of the ordinary Clamart Pea by being somewhat longer, paler, and considerably curved. There are, on an average, ten tiers of them on a stem. They are very well filled, each containing from seven to nine peas, which very soon swell so large as to touch and mutually flatten one another on two sides. They retain this shape when ripe, at which time they become almost wrinkled, and white with a faint green tinge. This variety comes in almost at the same time as the Early Frame Pea, and continues to yield nearly as long. The two kinds are very easily distinguished from each other by the difference in the shape of the pods and in the shape and colour of the peas.

Early Clamart Pea.

Étampes Wonder Pea.—Stem usually single, long jointed; leaves inclined to be broad, and very light green; stipules exceedingly large and broad. In general appearance it resembles the Laxton's Supreme Pea, but is not quite so tall. Flowers generally in pairs, commencing to bloom at the tenth joint of the stem, large, white, often having the standard scalloped or toothed on the margin. The pods grow very rapidly, and in a few days become long, broad, and slightly curved towards the end. They swell considerably before the peas are fully grown, in which respect the plant very much resembles Laxton's Supreme; but the two varieties differ entirely in the seed or peas, these being large and green in Laxton's Supreme, while in the Étampes Wonder they are medium-sized and white. The pods of the latter variety are well filled, each generally containing from ten to twelve peas, which become very round and white when ripe. The plant usually carries from seven

to twelve tiers of pods. This variety must be classed between the Leopold II. and the Scimitar Pea, having the pod of the Scimitar and the size and earliness of the Leopold II. It has the peculiarity of maturing all its pods at about the same time.

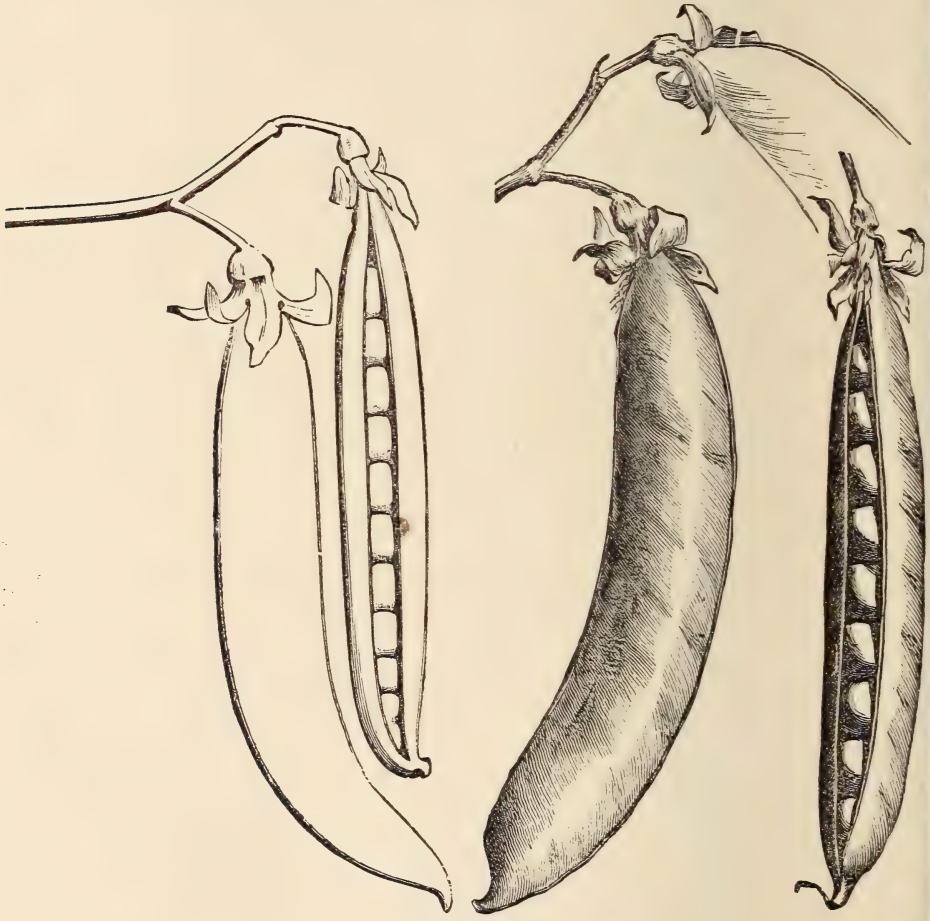
White Scimitar Pea (*Pois d'Auvergne*). — Stem almost always branching, and averaging about 4 ft. in height; leaflets and stipules oval, rather pointed, light green, sometimes tinged with yellow; flowers almost always in pairs, white, medium-sized, commencing to bloom at about the twelfth joint of the stem; pods long and slender, at first slightly curved backwards, then becoming straight, and finally curved forwards in the shape of a pruning-knife. The concave curved line, corresponding to the edge of the knife, is that along which the peas are attached inside the pod. This is the front part of the pod. The opposite or convex part is the "back" of the pod, and the peas are never attached to the pod on that side. The pod of the White Scimitar Pea is very well filled, and contains from nine to eleven, and sometimes twelve, medium-sized peas, which are remarkably round, rarely flattened, and, when ripe, are white, slightly tinged with salmon colour.

Étampes Wonder Pea.

This variety comes into flower from eight to ten days later than the Early Emperor, and yields a very constant supply of pods for more than a month. It is a very good kind,

remarkable for the fine quality of the peas, and grows well in ordinary soil.

Long-podded Improved Scimitar Pea.—An improved form of the White Scimitar, ripening mid-season, not above 4 ft. or so in height, with emerald-green leaves, and stems carrying from five to

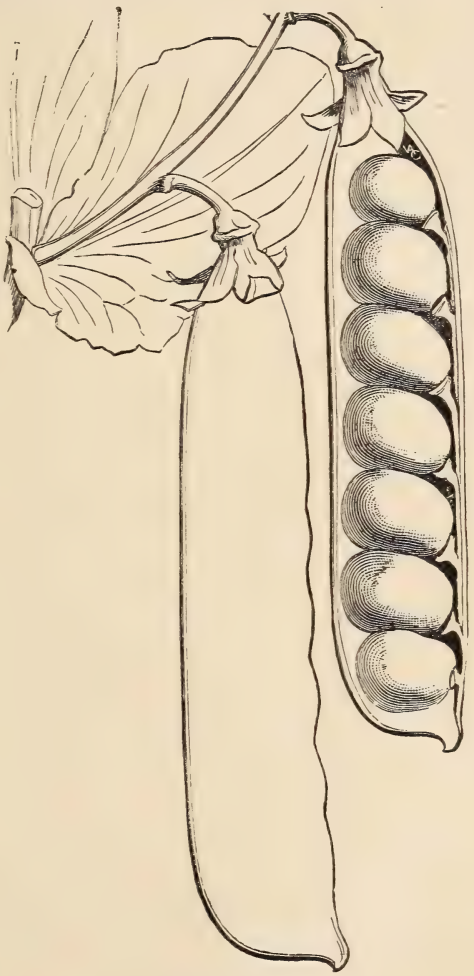


White Scimitar Pea (natural size). Sabre Pea.

seven tiers of long-stalked flowers, produced in pairs. Pods about $3\frac{1}{4}$ in. long, pointed and curved at the end, well filled, containing seven or eight small round salmon-coloured peas.

Sabre Pea.—Stem stout, very often branching, from about 4 to $4\frac{1}{2}$ ft. high; leaflets and stipules very large, rather round,

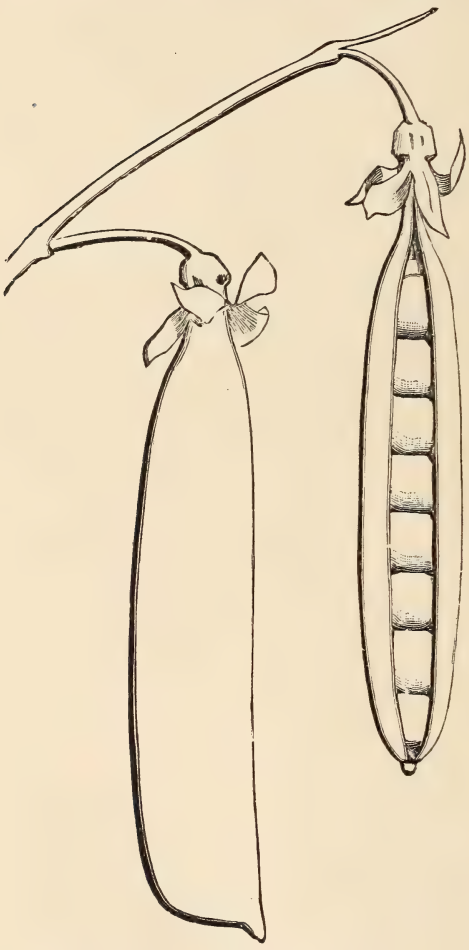
somewhat blunt, glaucous and gray-green; flowers both solitary and in pairs, large, white, usually only commencing to bloom at the twelfth or fourteenth joint of the stem. The plant comes into flower at the same time as the White Scimitar. Pods broad, pale green, curved backwards in an opposite direction to that of the White Scimitar Pea—that is, having the peas attached along the inside of the convex line formed by the front of the pod, the back of the pod in this variety being concave. This Pea does not continue bearing so long as the White Scimitar, its period being about three weeks. The stem carries ten or more tiers of pods. The peas are white, large, and somewhat oblong in shape. This variety was some years ago in great request in the Central Market at Paris, but it does not appear to be so much in favour there at the present day.



Giant Saumur Pea.

Marly Pea.—A vigorous, often branching plant, and in its general appearance rather like the Ruelle Michaux Pea, but almost always producing the flowers in pairs, and only commencing to bloom at about the twelfth joint of the stem. Pods straight, about 3 in. long, each containing seven or eight large round white peas, of a slightly oblong shape, rather like those of the preceding variety. The variety is moderately productive and early, but is chiefly distinguished for the large size of the peas, as are also several other varieties which are closely allied to it, but are seldom found in cultivation at the present day. Of these varieties

we may mention the following:—**Gouvigny Pea.**—The pods of this variety are longer and narrower than those of the Marly Pea. **Lady's-finger Pea.**—In this variety the outside of the pods is swollen over each of the peas. Lastly, the **Square White Pea.**—The peas in this variety, being closely pressed together in the pod, are usually flattened on two sides, like those of the Clamart Pea. In their habit of growth the three varieties just mentioned very much resemble the Marly Pea. They have thick stout stems and very large leaves and stipules. They come in about the same time as the White Scimitar — that is, half-late. Of the four kinds mentioned in this article, the Marly Pea is the earliest.



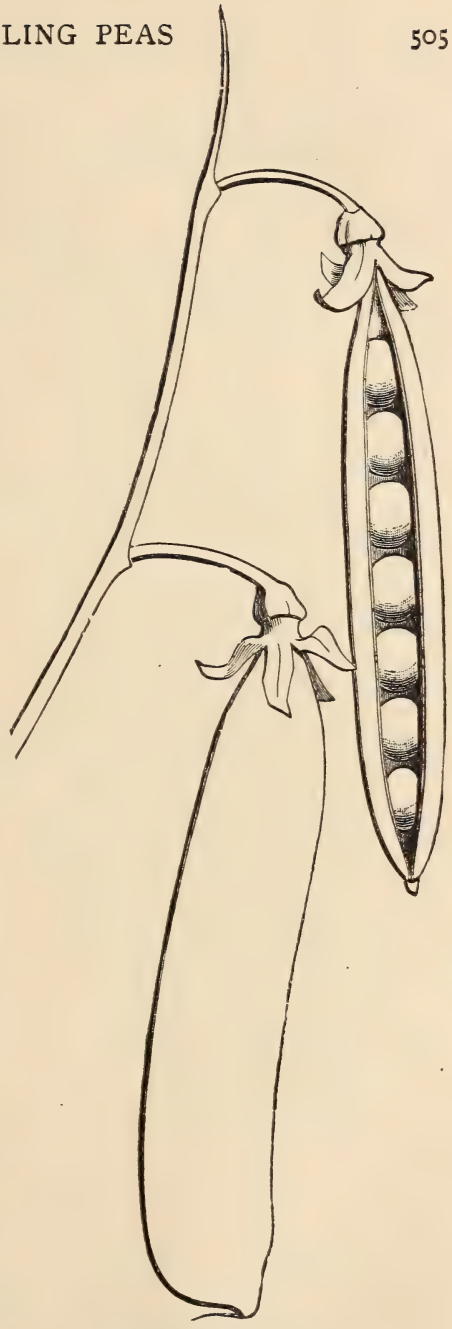
Late Clamart Pea (natural size).

Giant Saumur Pea.—A tall late variety, 5 or 6 ft. in height, resembling somewhat the Giant Marrow Pea. The stems are stout, close-jointed, and bear seven or eight tiers of flowers produced in pairs. The pods are 3 to 4 in. long, curved, and contain from six to nine very large, square, salmon-coloured or milky white seeds. Ripens at about the same time as the Late Clamart Pea.

Late Clamart Pea.—Stem tall, tufty, branching, 5 to 6 ft. high; leaves medium-sized, light green, not so glaucous as those of most other varieties; flowers white, medium-sized, almost always in pairs; pods straight, or very slightly curved, of uniform width, and abruptly narrowed at both ends. The stem is single up to the fourteenth or fifteenth joint, after which it divides into two or three, rarely four, branches.

The flowers first appear at about the sixteenth or eighteenth joint. The pods are seldom more than about 2 in. in length; they are generally well filled, and the peas are pressed so closely together that they are quite flat on two sides. They retain this shape when ripe, and are then white or slightly greenish. There are usually from five to eight peas in each pod. The main stem carries from seven to nine tiers of pods, and the branches have seldom more than four tiers.

Giant Marrow, or Royal Victoria, Pea.—A very tall variety, 5 to 6½ ft. high. Stems thick and stout; leaves large, numerous, light green; flowers white, large, almost always in pairs; pods usually commencing to appear at about the fifteenth joint of the stem, rather large, broad, square at the end, and very slightly curved. The stem carries about ten tiers of pods, and does not usually branch. Each pod contains from five to seven peas. These are somewhat elongated in shape, white, and, when ripe, are flattened or more or less hollowed, as if they had a tendency towards the shape of the Wrinkled Peas. This variety is one of the latest. It comes into flower at the same time as the Late Clamart Pea.



Victoria Marrow Pea.

In England the name of *Marrow Peas* is applied to all the varieties which have very large tender Peas, including the Wrinkled as well as the Smooth or Round-seeded kinds.

Tall Round or Smooth Green-seeded Peas.

Express Pea.—Stems slender, 23 to about 28 in. in height, with light, rounded, glaucous green foliage, and white, solitary flowers appearing usually from the fifth or sixth joint. The pods are straight, square at the ends, and contain from five to eight small, round peas of an intense blue-green colour when ripe. The Express Pea closely resembles the Prince Albert Pea, except that the colour is more glaucous and rather darker, and the seed decidedly more glaucous. It is also three or four days later, and more productive. Though of recent introduction, it is now a favourite with growers.

Express Pea.

Blue Alaska Pea.—A very early Pea, about 2½ ft. high, rather taller and lighter green than Express, but otherwise differing little from it. The stems carry eight tiers of long-stalked solitary flowers. The pods are 2½ to 3½ in. long, straight, rather swollen, blunt at the ends, and contain usually six green, round, or slightly flattened peas, a little larger and more coloured than those of Express Pea. This variety is better suited for dry, warm climates than Express.

William the First Pea.—A rather slender climbing Pea, with slight yellow-green leaves. Stems thin, rather long jointed, almost always single, commencing to flower at the seventh or

eighth joint, and carrying from seven to ten tiers of pods. Pods mostly solitary, dark green, from 2 to nearly 3 in. long, narrow, curved like a pruning-knife, generally very well filled, and borne on very long stalks. Each pod contains from seven to ten peas, of a deep green, very closely pressed against one another, and flattened on two sides when ripe. This variety is not so early as Prince Albert, but it is earlier than the Early Emperor, and continues bearing for a

Early William Pea.

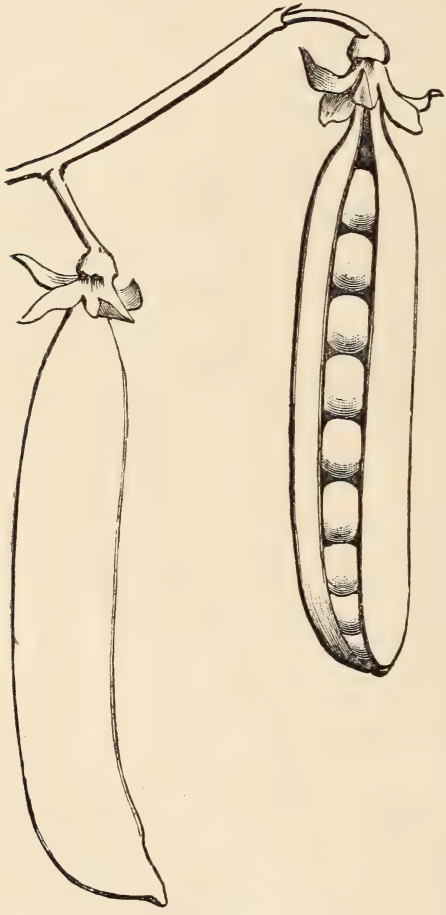
Pods (natural size).

remarkably long time. Its fresh green peas are of a fine colour and excellent flavour. In England this variety is one of the most highly esteemed of early Peas.

Early William Pea.—A variety which requires to be staked, although scarcely 3 ft. in height. The pods are very large, and shortly curved like a pruning-knife. The peas are fairly large, angular rather than wrinkled, and dull olive-green. This variety

has been raised by Mr. Laxton, and is one of the best; it is very productive, and as early as Prince Albert, Express, The Shah, etc.

Green Hundred-for-One Pea.—A vigorous variety, from 3 to 4 ft. in height, with very glaucous leaves and stems, which continue green when dry. The flowers are in pairs, and in seven to nine tiers. The pods are 3½ to 4½ in. long, very glaucous, slightly curved, and contain from six to eight medium-sized, light, ashy green peas. It is a half-late and extremely productive variety, a plant often producing twenty pods and over, containing as many as eight seeds in each pod.

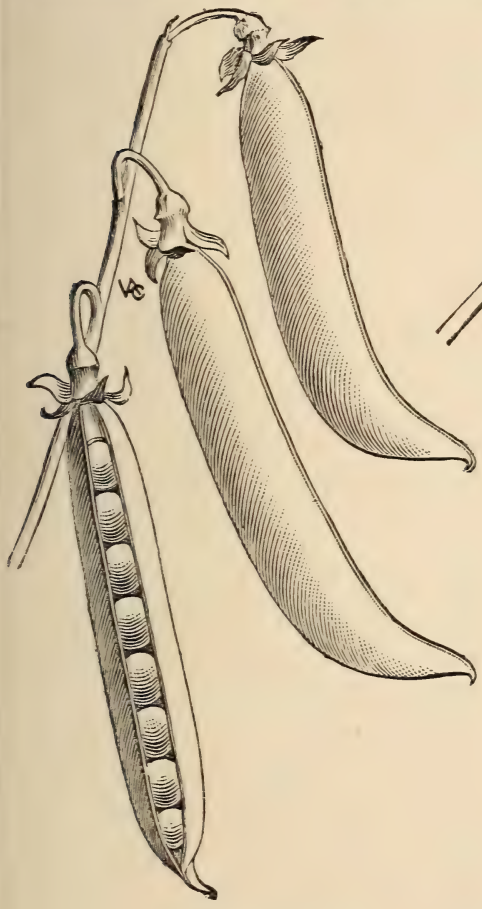


Laxton's Supreme Pea.

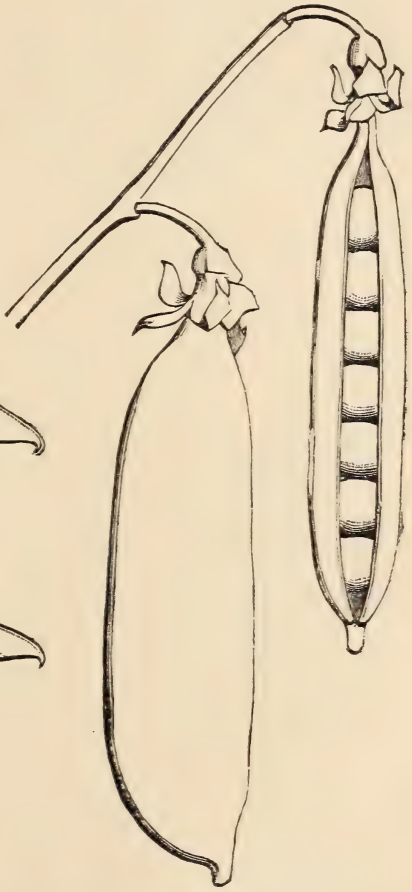
Laxton's Supreme Pea.—This variety was one of the first raised by Mr. Laxton, and it remains one of the best. It is hardy, rather productive, and remarkable for the handsome appearance of the pods and peas. It quickly came into favour with the cultivators around Paris soon after its introduction in 1869. Stem about 4½ ft. high, usually simple and glaucous; leaflets and stipules rather large, and pale yellow-green; flowers generally solitary, green at first, then white, and commencing to bloom at about the twelfth joint of the stem, which usually carries from six to eight tiers of them; pods from about 3 to nearly 4 in. long, dark green, straight, with a short and abruptly curved point; peas large, somewhat oblong in shape, sometimes misshapen from the great pressure which they undergo in the pods, and remaining of a dark green colour after they are ripe. This variety comes into flower a day or two earlier than the White Scimitar Pea, but does not continue bearing so long, usually not longer than three weeks. Peculiar to

this Pea is the manner in which the pods swell, long before the peas attain any size, and, while these are very small, becoming inflated to such an extent that the width is greater than the depth.

Three-podded Pea.—A late variety, with stout stems, about 4 ft. in height bearing five or six tiers of flowers, mostly produced in



Tall Three-podded Pea.



Tall Square Mammoth, or Normandy, Pea.

bunches of three at the tops of the stalks and set freely; the pedicels often provided with a foliaceous and toothed bractea. The pods are small, thin, 2½ to 3½ in. long, pointed, much curved at the end, well filled with eight or nine small, round, smooth, bluish green peas.

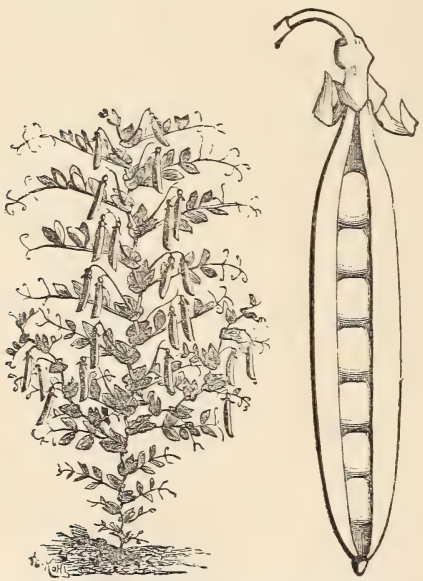
Tall Square Mammoth, or Normandy, Pea.—Stems thick, very stout, almost always branching, from 5 to 6½ ft. high; leaves

large, rather closely set, and of a dark, somewhat glaucous, green ; flowers largish, always in pairs, of a greenish white colour ; pods very broad, between 2 and 3 in. long, very slightly curved, and narrowed from the middle to both ends. They do not commence to appear lower than at about the eighteenth to twentieth joint of the stem. Each branch seldom carries more than five or six tiers of pods, but, as the plant usually has three or four branches, the produce is considerable. Each pod generally contains from four to six peas, which are large, very much flattened at the sides, somewhat wrinkled, and of a grayish green colour when ripe.

B. Half-Dwarf Varieties

Smooth or Round White-seeded Peas

Bishop's Early Dwarf Pea (*Pois Nain Hâtif, Pois Lévêque*).—A dwarf, yet not very dwarf, variety, 20 in. to 2 ft. high. Stem rather thick-set, thin at the base, and somewhat zigzag in growth ; leaves medium-sized, and rather dark green ; stipules rather small than large, and very much toothed at the base ; flowers white, medium-sized, sometimes solitary and sometimes in pairs, commencing to open at about the tenth or eleventh joint of the stem ; pods comparatively large and broad, from about 2 to over 3 in. long, slightly curved, each usually containing from five to seven peas, which are white, sometimes green, large, and slightly square in shape. The stem usually carries seven or eight tiers of pods, and occasionally has one or two branches which are often sterile.

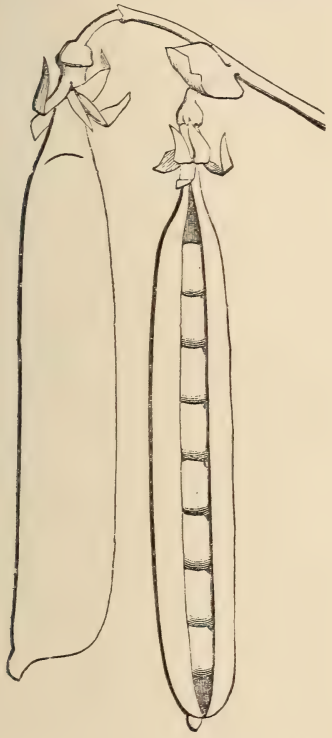


Bishop's Early Dwarf Pea. Pod (natural size).

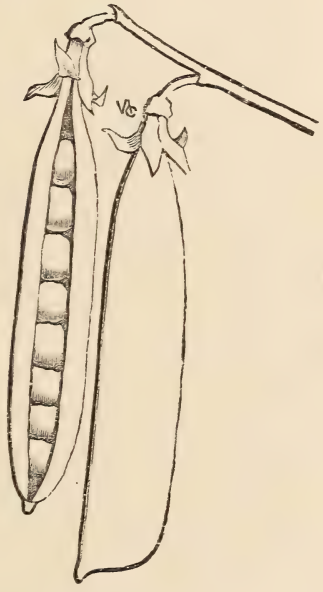
Bishop's Long-pod Pea.—This variety seldom grows higher than from 20 in. to 2 ft., the stem having one or two branches immediately below the twelfth joint, at which place the flowers usually commence to appear. Flowers white, medium-sized, opening not very freely, and as often solitary as in pairs ; pods rather long—3 in. or more—straight, somewhat pointed, each containing

from six to eight peas, which are nearly round, pale green, becoming white, quite round, and of medium size when ripe. This variety is about as early as the preceding one, from which it differs but little. Both are very good kinds for a main crop in the open air.

Dwarf Dutch Pea (*Pois nain ordinaire*).—A dwarf, compact-growing kind, seldom exceeding from 20 in. to 2 ft. in height. Stems rather slender, zigzag in growth, with numerous closely set joints, and usually branching; leaves numerous, small, stiff, and slightly twisted; flowers almost always in pairs, and commencing to open at about the twelfth joint of the stem; pods seldom more than 2 in. long, slender, square



Bishop's Long-pod Pea.



Dwarf Dutch Pea.

at the end, very slightly curved, each containing from six to eight peas, which are very closely pressed against one another, and are consequently flattened on two sides when ripe. They are remarkably small, somewhat angular in shape, and of a slightly green tint. The main stem carries about eight tiers of pods, and the branches have from two to four tiers each. This variety has a remarkably compact appearance when growing, and the very numerous white flowers are effectively relieved by the very green and tufted foliage.

Early Dwarf Clamart Pea.—A nearly dwarf variety, scarcely over 2 ft. or as much as 2½ ft. in height, and erect enough to dispense with stakes. The pods are numerous, in pairs, and of medium size, slightly curved, and well filled. The peas are square, large, tender, and sugary. It is half-early, coming in immediately after the early sorts ; it is a good Pea for field culture.

Smooth or Round Green-seeded Peas

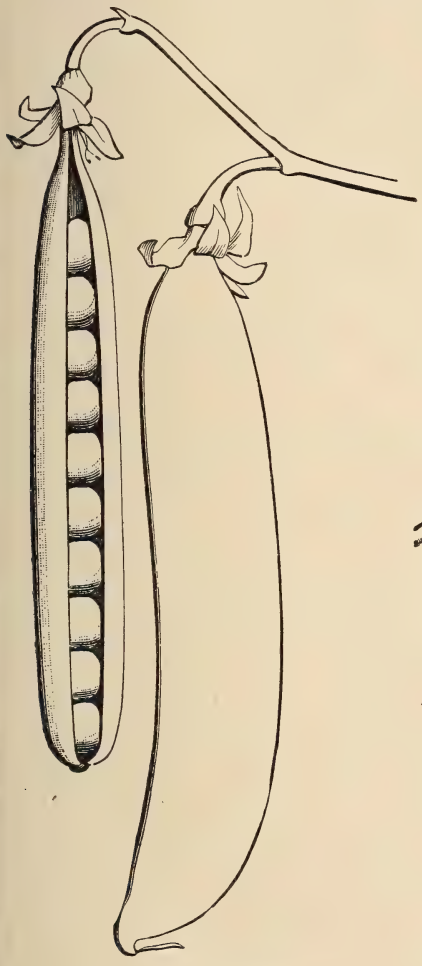
Imperial Dwarf Blue Pea.—A half-dwarf kind, from 2 to 2½ ft. high. Stem stout, rather thick-set, and of zigzag growth, especially at the base ; leaves rather slender, with oval-pointed leaflets, of light green colour, entirely free from any glaucous tint or grayish markings; flowers usually in pairs, almost green, commencing to bloom at about the twelfth joint of the stem, and above one or two branches which are seldom of any great size ; pods about 2 in. long, rather narrow, well filled, faintly curved like a pruning-knife blade, each containing six or seven peas, which, when ripe, are large and closely pressed against one another. They continue quite green, and are generally very full, but slightly square or angular. The main stem carries from six to eight tiers of pods, and the branches rarely have more than three tiers. This variety may be infallibly distinguished from all others, when it comes into bloom, by the peculiar, almost green, colour of its flowers, which, even when quite fully expanded, are veined and tinged with green, like the unexpanded flowers of all kinds of Peas.

Imperial Dwarf Blue Pea.

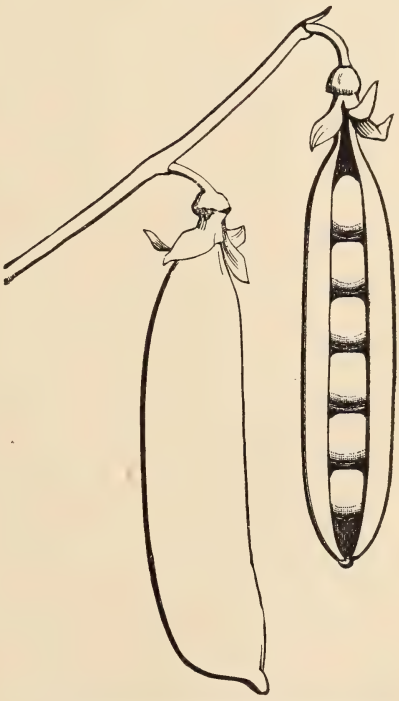
Laxton's Fillbasket Pea.—A half-dwarf kind, 2½ to 3 ft. high. Stem rather thick-set, short jointed, often producing two or three branches which grow nearly as tall as the main stem, and generally issue from about the tenth or twelfth joint. The first flowers appear at about the thirteenth or fourteenth joint, and are greenish white and often solitary. The main stem carries six or seven tiers of them, and the branches only from three to five tiers. Pods about 3¼ in. long, rather narrow, curved like a pruning-knife blade, very much pointed at the end, and exceedingly well filled, each containing from seven to ten peas, which are dark green, large, square, and, when ripe, a clear, pale green. This variety is easily

distinguished by its leaves being a light yellow green, narrow, slight, and very much waved at the edges, especially those at the top of the stem.

Gladiator Pea.—A half-dwarf variety, with stems 27 or 28 in. high, with two or three branches carrying six or seven tiers of short-stalked flowers usually produced in pairs. The pods are curved, 3 to 4 in. long, and well filled, with seven or eight round dark green, fairly large, and slightly wrinkled peas. A half-early, productive variety, rather like Fillbasket.



Laxton's Fillbasket Pea.



Dwarf Blue Prussian Pea (natural size).

Dwarf Blue Prussian Pea.—A half-dwarf variety, from 2 ft. to 2 ft. 4 in. high, thick-set, and very branching. Leaves rather large, rounded, and glaucous; stipules very much blotched with

gray; stem stout, of zigzag growth, with very close joints, beginning to branch at the fourth or fifth joint, and showing the first flowers at about the tenth joint; flowers white, medium-sized, sometimes solitary, but most usually in pairs; pods broad, between 2 and 3 in. long, slightly pointed at the end, and seldom very well filled, each usually containing not more than five or six peas, which are large, very much flattened, slightly irregular in shape, and of a pale green, bluish when ripe. The stem generally carries seven or eight tiers of pods, and the principal branches have four or five tiers. This is a very hardy and productive variety, but rather late than early. It is grown on a large scale for the dried peas, which are usually met with in commerce under the name of *Green Noyon Pea*.

Blue Beauty Pea.—Quite dwarf, very branching, not much over 15 in. in height, and inclined to lie down. The pods are rather short, broad, with rounded, slightly oblong peas, of a glaucous almost blue colour when ripe. It is remarkable for the beauty and size of its peas.

C. Dwarf Varieties

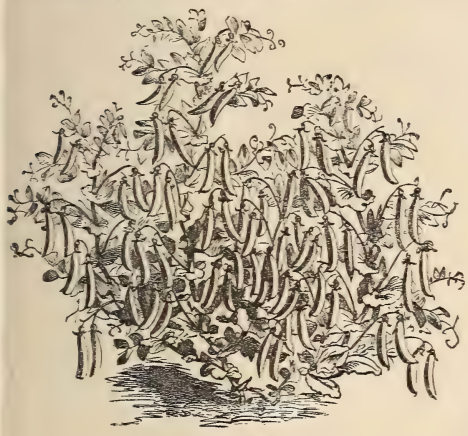
Smooth or Round White Peas

Early Dwarf Frame Pea.—Stem exceedingly short, seldom more than from 8 to 10 in. high; joints very close; leaflets and stipules rounded, dark green, finely marbled with a gray tinge; flowers white, very small, usually solitary, commencing to bloom at the seventh joint, seldom opening fully, and often not extending outside of the leaves; pods about 2 in. long, straight, rather slender, nearly square at the end, and very like those of the Prince Albert Pea, each containing seven or eight white, round, medium-sized peas. Though dwarf, it is rather productive, excellent for frame culture, and only two or three days later than Sangster's No. 1.

Early Dwarf Frame Pea ($\frac{1}{10}$ natural size).

Dwarf Very Early Annonay Pea.—Stems very short, the joints pretty close, less, however, than in the preceding. The flowers are small, white, and short stalked, making their appearance at the sixth or seventh joint. The pods and seeds are like those of the Early Dwarf Frame Pea. It may be grown under glass, but is well suited for open ground cultivation.

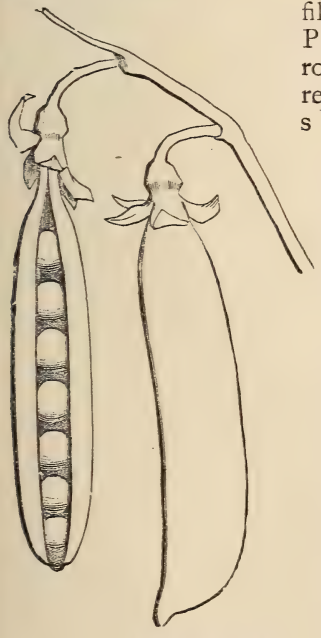
Couturier Dwarf Pea.—Stems short, very branching, with small gray-green leaves. The flowers are white, usually in pairs,



Couturier Dwarf Pea.

Pods (natural size).

commencing to bloom at the eighth joint of the stem. The pods are small, straight, thin, short, but well filled. The Peas are round, and regular in shape; when ripe quite smooth, and slightly tinged with salmon colour, like those of the Scimitar Pea, which they resemble, except that they are smaller. It is midway in earliness between the two preceding and the Brittany Dwarf.



Very Dwarf Brittany Pea.

Very Dwarf Brittany Pea.—A very dwarf Pea, with slender, rather dark green leaves. Stems very short jointed, of zigzag growth, commencing to flower at about the twelfth joint. The two joints immediately below generally produce branches which are often sterile. Flowers in pairs, white, well opened, but very small; pods seldom over 2 in. long, dark green, very slender, and slightly curved like a pruning-knife blade, each containing from five to seven peas, which are

square from pressure and fill the pods completely. The main stem carries from six to ten tiers of pods, and the branches seldom have more than two tiers. This variety is about as early as the Early Frame Pea. The peas, when ripe, are small, squarish, slightly tinged with salmon colour, and sometimes green.

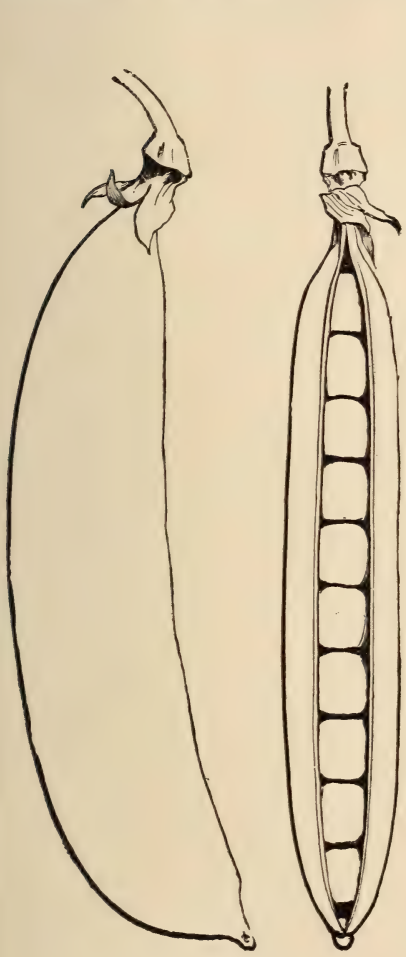
MacLean's Blue Peter Pea.—A very dwarf variety, but not so compact in growth as the Early Dwarf Frame Pea. The joints of the stem are longer, being about equal in length to the stipules. Leaves a very dark glaucous green, those at the end of the stem being very much reduced in size, closely crowded together, and a very dark green; flowers rather small and slightly tinged with green, sometimes solitary and sometimes in pairs, and commencing to bloom at the seventh or eighth joint of the stem, two or three days later than the Early Dwarf Frame Pea; pods rather broad, a little over 3 in. long, each containing from five to eight peas, which are somewhat oblong in shape, very large, and, when ripe, retain their pale green, slightly bluish, tint. Owing to its dwarf size this variety may be used as an edging like the Early Dwarf Frame Pea, to which it is superior in productiveness.

MacLean's Blue Peter Pea.

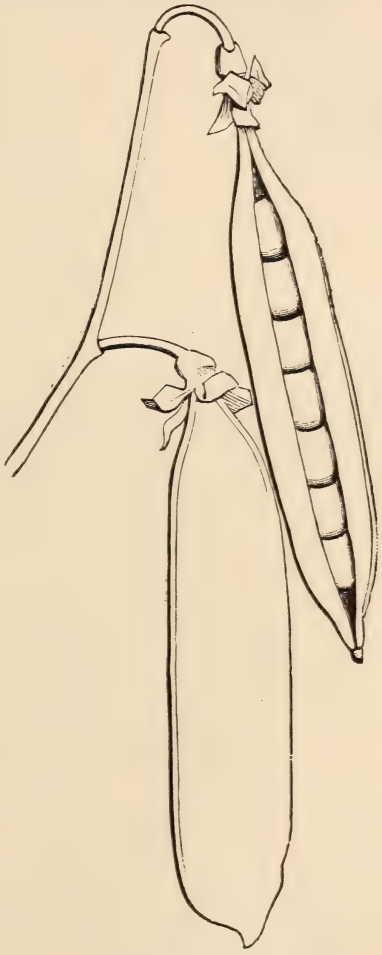
Pods (natural size).

Pride of the Market Pea.—A dwarf variety, with thick, short, pretty close-jointed stems; the leaves, especially the stipules, are very large, of almost yellow-green colour. The flowers are a greenish white, solitary, hidden amongst the foliage, commencing

to show themselves at the eighth or tenth joints. The pods are solitary, irregular, but large, equalling almost those of the Telephone Pea in size. The seed is very large, oblong, flattened, often slightly depressed on one or two sides, but not wrinkled, and in colour a bluish



Pride of the Market Pea.



Purple Podded Pea.

green sometimes tinged with darker green at maturity. When grown under conditions that are favourable, it is a very fine variety, but it is better for kitchen-garden than field culture, owing to the great size of its foliage and the time of its maturity, which makes it liable to suffer from the heat and drought of the summer, for which reason it succeeds better in sheltered gardens.

Purple-podded Pea.—A curious but not very useful variety, with dark purple-coloured pods. The seed is large, gray-green, becoming brown when cooked, which lessens its value for table use. The pods, when boiled, lose their purple colour, and become almost green, but they are tough and leathery, and uneatable even before they are fully grown.

II. Wrinkled Peas

Pois ridés

A. Tall Climbing Varieties

White-seeded Peas

Gradus Pea.

Gradus Pea.—A fine early Pea with stems 2½ to nearly 3 ft. high, carrying four or five tiers of solitary flowers. The pods are large, straight or slightly curved, about 4½ in. long, and contain from five to seven large wrinkled white or slightly green Peas. This is the earliest of all wrinkled Peas, and is remarkable for the great size and fine appearance of its pods.

Laxton's "The Shah" Pea.—A climbing Pea with a very slender stem, which is almost always single or with one or two small branches, and rather long jointed. Leaves slight, light green, tinged with gray; stipules a little darker than the leaves, and distinctly marked with gray blotches; flowers white, medium-sized, solitary, or rarely in pairs, and commencing to bloom at the sixth or seventh joint of the stem; pods very slender

at first, about 2 in. long, quite square at the end, and becoming very much swollen before ripening, each containing from five to seven peas, which are very closely pressed together, and consequently flattened at the sides, and, when ripe, are square in shape, very much wrinkled, and pure white. The stem usually carries six or seven tiers of pods. In all its characteristics of growth, habit, and foliage, this variety comes very close to Sangster's No. 1 Pea, but differs from it entirely in the appearance of the seeds or peas. It was raised by Mr. Laxton, about the year 1875.

Laxton's "The Shah" Pea (natural size).

Telephone Pea.

Carter's Telephone Pea.—A climbing Pea, from about 3 to 4 ft. high. Leaves very large, pale yellow-green, veined and marbled with white; stipules quite remarkable for their large size; stem generally simple, but occasionally with one or two branches, rather long jointed,

and commencing to flower at about the twelfth joint; flowers white, rather large, and often solitary; pods very large and broad, sometimes 4 in. long, straight, and slightly curved towards the end like the blade of a pruning-knife, rather swollen, each containing from eight to ten very large green peas, square in shape, and, when ripe, either perfectly white or more or less tinged with green. This variety is a little later than Laxton's Supreme, and a plant seldom carries more than eight pods.

Knight's Tall Marrow Pea.

Colossus Pea.—A tall, vigorous half-early Pea, nearly 5 ft. in height, with very light green leaves and branching stems, bearing five or seven tiers of flowers, mostly in pairs. The pods very large, 3 to 4 in. long, flattened, straight, rounded at the end, containing eight or ten large, white or greenish, somewhat flattened and slightly wrinkled peas. It is remarkable for the beauty of its pods. In the Paris market the large-podded Peas have of late years found more favour, and the demand for them is steadily increasing.

Knight's Tall Marrow Pea.—A tall-growing late variety, 6½ ft. or more high. Stems rather strong, but not very thick, long jointed, unbranched up to the twelfth joint, and commencing to flower at about the sixteenth joint; flowers white, very large, almost always in pairs; pods long stalked, large, broad, perceptibly curved, and from about 2 to over 3 in. long. The main stem carries from eight to ten tiers of pods, and the branches from three to five tiers. It is to be remarked that the joints immediately below the first flower do not all produce branches, and that the same stem does not usually produce more than two. Each of the pods contains

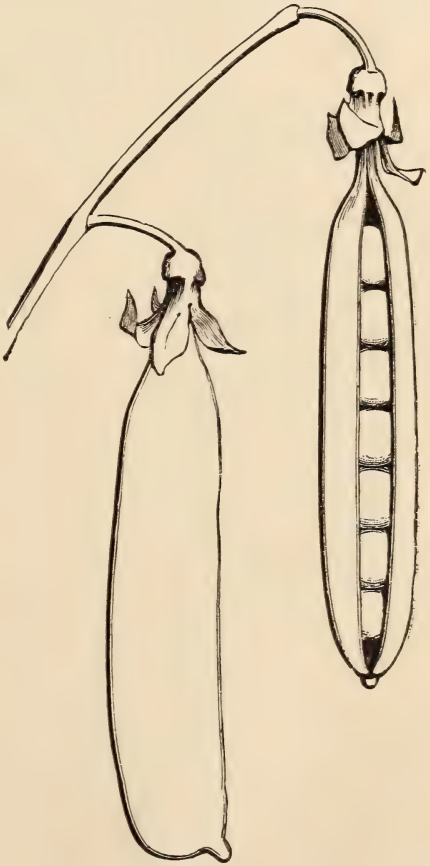
from six to eight large elongated peas, which, when ripe, become very much wrinkled, almost flat, and generally white or tinged with green. In this variety one of the two flowers in the pairs is often accompanied by a small rounded leafy bract at the base.

Tall Wrinkled Large White, or **British Queen, Pea.**—A very tall Pea, often over 6 ft. in height, with thick, branching, long-jointed stems, and leaves and stipules very large, smooth and of a whitish green faintly tinged with gray-green. The flowers are white, large, in pairs. The seed is large, oblong, and white and wrinkled at maturity. It is a very vigorous, productive variety, producing peas of great size and quality. Like the Wrinkled Knight Pea, it requires extra long stakes.

Tall Wrinkled Green-seeded Peas

Laxton's Alpha Pea.—This variety very much resembles Prince

Laxton's Alpha Pea.



Tall Green Wrinkled Marrow Pea.

Duke of Albany Pea.

Albert in height, habit of growth, and earliness, but is distinguished from it by the paler and yellower tint of the leaves. The flowers are generally solitary, but occasionally in pairs, and begin to open at the seventh or eighth joint of the stem. Pods very long stalked, rather pointed, and very slightly curved, about 2 in. long, each containing from six to eight peas, which are small, very much wrinkled, and remaining green when ripe. A stem carries from five to seven tiers of pods. This Pea is one of the best known and most extensively cultivated of the varieties raised by Mr. Laxton, whose name we have had frequent occasion to mention.

Tall Green Wrinkled Marrow Pea.—A very tall, strong plant, with thick stems sometimes over 6 ft. in height, usually in two branches and flowering only at the twelfth joint. The flowers are white,

large, often solitary. The pods, which are very large, do not swell much even when nearly fully grown. They contain from six to nine very large light green peas, which become white and wrinkled at maturity.

Duke of Albany Pea.—A tall, stout-stemmed Pea, 4½ ft. or even more in height. The flowers commence to bloom at the twelfth joint, generally in pairs. The pods are very long, 4 to 6 in., smooth, dark green, slightly curved at the end, cylindrical when fully grown, well filled with ten or eleven very large peas, which are slightly oblong in shape, and wrinkled when ripe ; of a dark green colour, but lighter if allowed to mature properly. A very good and handsome variety, only rivalled by the Telephone as an exhibition Pea.

B. Half-dwarf Varieties

White Wrinkled Peas

White Eugénie Dwarf Wrinkled Marrow Pea.—A half-dwarf variety, 2 ft. to 2 ft. 8 in. high. Stem rather slender, almost always unbranched, commencing to flower extremely low, often at the fifth joint ; flowers white, medium-sized, always solitary towards the lower part of the stem, and often in pairs a little higher up ; pods rather variable in size, usually 2 or 3 in. long, pointed towards the end, slightly curved like the blade of a pruning-knife, and very unequally filled, those at the lower part of the stem often containing but one pea, and seldom more than three or four, while later pods will often have seven or eight. While in the green or unripe state, the peas are large, square, and somewhat flattened at the sides; when ripe, they are very wrinkled, unequal in size, and a salmon tinted white. The stem carries from twelve to fifteen tiers of pods. This would be one of the most

White Eugénie Dwarf Wrinkled Marrow Pea.

productive early varieties if the first pods were better filled. It will bear for six weeks or more if the pods are gathered as they become fit.

Green Wrinkled Peas

Knight's Dwarf Green Wrinkled Marrow Pea.—This variety only differs from the White Eugénie Wrinkled Pea in having the leaves somewhat marbled and undulated, and the peas pale green.

Knight's Dwarf Green Wrinkled Marrow Pea (natural size).

MacLean's Best of All Pea (natural size).

It exhibits precisely the same characteristics of growth as the White Eugénie Pea, and especially the peculiarity of the lower pods being usually small and badly filled, while those growing from the middle of the stems are much larger and generally well filled. It is very difficult to obtain this variety quite pure at the present

time, and among the numerous varieties which resemble it, and which are often sold for it, there is, perhaps, not one that possesses the same combination of good qualities, and especially such great earliness along with such very great and continuous productiveness.

MacLean's Best of All Pea.—This is a half-dwarf kind, growing about 2½ ft. high, very thick set, and with a short-jointed stem. Leaves stiff, medium-sized, and of very dark glaucous green; flowers medium-sized, white, in pairs; pods broad, from 3 to nearly 4 in. long, gradually narrowed at both ends, and usually not completely filled; stems simple to the eighth or ninth joint, then producing three or four branches, and bearing the first pods at about the twelfth joint. The main stem carries from five to seven tiers of pods, and the branches have seldom more than two or three tiers. Each pod contains from three to eight very large peas, oval in shape, and, when ripe, very wrinkled, much flattened, and a pale gray-green. This is a productive, half-late variety, of good quality.

G. F. Wilson Pea.

G. F. Wilson Pea.—A half-dwarf variety, growing from 2 to 2½ ft. high. Stem thick and stout; leaves very large, glaucous green, especially remarkable for the great size of the stipules and the absence of gray spots; flowers white, rather large, generally in pairs, but often solitary also, and commencing to open at about the tenth joint of the stem; pods from about 2¼ to over 3 in. long, at first very flat and exceedingly broad, but becoming narrower as the peas increase in size. The stem carries from six to eight tiers of pods. They are seldom very well filled, each usually

containing not more than five or six peas, but these, it is true, are nearly as large as field-beans; they are oblong and somewhat flat in shape, and, when ripe, exceedingly wrinkled, flat, and a pale green. The thickness and strength of the stalks which bear the pods are a particularly distinctive characteristic of this variety.

C. Dwarf Varieties

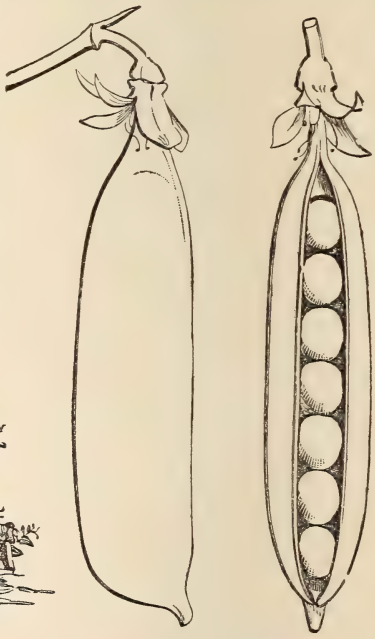
White-seeded Wrinkled Pea

Chelsea Gem Pea.—A very dwarf, hardy, early Pea, resembling Laxton's William Hurst in every respect, except that it has white seed.

Green-seeded Wrinkled Peas

American Wonder Pea.—An exceedingly dwarf variety, seldom growing more than 10 in. high. Stem short, stiff, usually single, or only branching at the neck, and bearing rather large, rounded dark green, slightly glaucous leaves; flowers small, white; pods sometimes in pairs, but mostly solitary and commencing to appear about the seventh or eighth joint of the stem, which seldom carries more than five tiers of pods. These are straight, very much swollen, 2 in. or more in length, comparatively broad, and exceedingly well filled, each containing from six to eight large flat peas which, when ripe, become very much wrinkled, rather flat, and a pale bluish green.

American Wonder Pea.



Pods (natural size).

English Wonder Pea.—A dwarf Pea, not much over 14 in. in height, with short and very branching stem bearing five or six tiers of flowers in pairs. The pods are medium-sized, straight, rounded at the end, and well filled with from six to eight rather small, flattened, wrinkled green peas. In productiveness this variety is both abundant and prolonged, and its quality is of the best.

Witham Wonder Pea.—Very dwarf, much like the English Wonder Pea, but not usually more than 11 or 12 in. in height. It is half-early. The stems are thick, branching, bearing pods near the soil, and five or six tiers of flowers in pairs. The pods are thin, between 3 and 4 in. long, curved at the end, well filled with eight or nine rather small, much flattened, wrinkled green peas. A very productive variety, and of excellent quality.

William Hurst Pea.—Stems short, irregular, and close jointed ; the leaves and stipules small, oblong, rather stiff, of an ash-green colour. Though small, it is a vigorous and sturdy variety. The flowers are small, white, solitary, or in pairs, and start from the eighth joint upwards. The pods are thin, fairly long, much curved, and contain six to eight medium-sized glaucous green and, when ripe, much-wrinkled peas. One of the best dwarf sorts for the kitchen-garden as well as the field.

Stratagem Pea.—Very like the Pride of the Market Pea, the only difference between the two being that in the Stratagem Pea the foliage is a more vivid green, and the seed wrinkled.

EDIBLE-PODDED, or SUGAR, PEAS

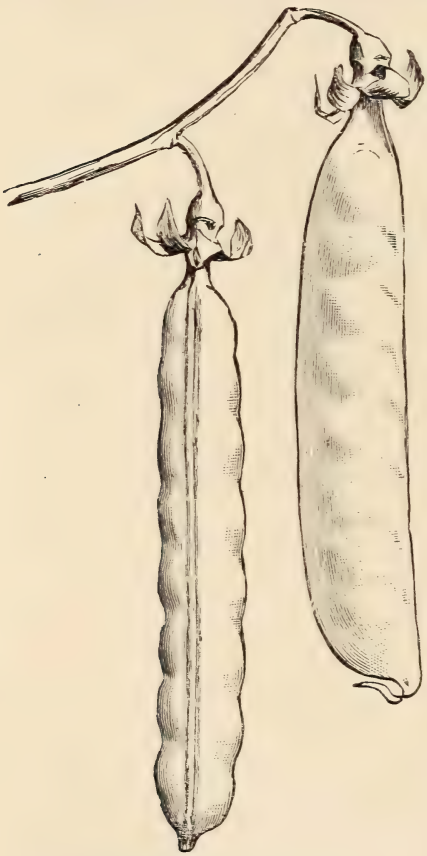
French, Pois sans parchemin. *German*, Zucker-Erbsen. *Dutch*, Peulen. *Italian*, Piselli di guscio tenero. *Portuguese*, Ervilhas de casca.

In all the varieties of Peas of which we have hitherto spoken, the pod is lined on the inside with a thin but hard and tough membrane, which, contracting as the pod ripens and dries, causes it to open into two equal parts, which become twisted spirally and often project the peas to some distance. We are now about to describe a class of varieties the pods of which are destitute of this membrane, and consequently always soft and tender, and do not open when ripe, so that they may be eaten entire, the tender fleshy part of the pod becoming more fully developed in the absence of the tough parchment-like membrane.

A. Tall Climbing Varieties

Forty Days Edible-podded Pea.—A climbing variety, from 3¼ to 4¼ ft. high. Stems slender, rather long jointed, and commencing to flower at about the fifth or sixth joint ; flowers usually

in pairs, white, and rather large; pods straight, slender, somewhat pointed at the end, very free from membrane, each containing from six to eight medium-sized peas, rounded or slightly compressed in shape, round and white when ripe. This variety very seldom branches, but carries from fifteen to eighteen tiers of pods, which are produced in succession, so that some of them may be quite ripe and dry at the base of the plant, while flowers continue to appear on the upper part of the stem. The flowering is often prolonged for more than two months.

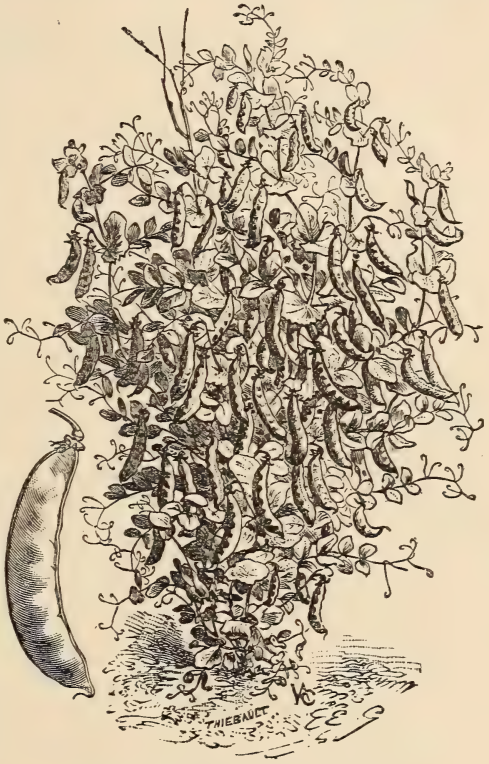


Forty Days Edible-podded Pea.

Tall Early Large-pod Sugar Pea. — Raised at Verrières by crossing the Forty Days Edible-podded Pea with the Large Crooked Sugar Pea. It is a tall Pea, but not so tall as its two parents, stakes 3 ft. 3 in. long being quite sufficient for it. The flowers are white, usually solitary, the pods long, broad, and very fleshy, resembling those of the Crooked Sugar Pea. The seeds are very large, round and white. In earliness it comes between the two varieties from which it has sprung. The pods are fit for use even when they are quite fully grown. Like the Crooked Sugar Pea it produces as a rule only solitary pods; but it begins to bloom near to the ground and may thus carry quite a number of tiers of pods, without requiring extra long stakes.

Tall Butter Sugar Pea.—This variety is very clearly distinguished from all other kinds of Edible-podded Peas by the swollen appearance of the pods, which very soon grow to be thicker than they are broad They are from 2 to nearly 3 in. long, and the sides, which are very fleshy and succulent, are nearly $\frac{1}{3}$ of an inch thick. The pods are pretty deeply curved, and are sometimes solitary, but most usually in pairs. The stems grow from $3\frac{1}{4}$ to about 4 ft. high, and are

rather slender and long jointed. The leaves are of a rather dark green, with whitish veins, and are almost devoid of spots. The flowers, large and white, are only solitary at the base and at the top of the stem. The stalks which bear the pods are slender, very stiff, and of medium length. Owing to the great thickness of the sides or walls of the pods, they do not bulge with the swelling of the peas, as is the case with most other varieties of Edible-podded Peas. The peas are white, very round, and rather large. This variety is almost as early as the Ruelle Michaux Pea. In the growth of the pod of the Butter Pea, as in the Edible-podded Peas in general, the soft portion or parenchyma of the pod seems to develop at the expense of the parchment-like membrane, which is wholly wanting. There is, however, this difference between the pod of the Butter Pea and those of all other Edible-podded kinds, that it is the *thickness* or *depth* of the pod which takes on the greatest development, while in the other kinds, as, for example, the Large Crooked Sugar Pea and the Giant Sugar Pea, it is the *breadth* of the pod which is enlarged.



Tall Early Large-pod Sugar Pea.

Tall Green-seeded Sugar Pea.—A very productive variety raised in Brittany. The stem is stout, about 4½ ft. high, bearing the pods pretty high up, in five or six tiers and in pairs. The pods are thin, 2½ to 2¾ in. long, not very fleshy, but free from membrane, and contain six to eight small, round, quite green, smooth or very slightly wrinkled peas. A late variety, remarkable for its abundant and prolonged production

Large Crooked, or Scimitar, Sugar Pea (*Pois Corne de Bélier*). —A tall climbing variety, 4 to over 4½ ft. high. Stem of medium

thickness, usually branching, long jointed; leaves rather large, a pale yellow-green; flowers white, very large, well opened, commencing to bloom at the twelfth or thirteenth joint of the stem, and almost always solitary; pods very large, whitish, entirely free from membrane, often twisted, whence the variety derives its name, sometimes from 4 to nearly 5 in. long and 1 in. or more broad, each usually containing from five to eight rather large round peas, set at some distance from one another, and very pale green, becoming white and perfectly round when ripe. The main stem usually carries from eight to ten tiers of pods, and the branches have only from three to five tiers. This is an exceedingly productive variety. It comes in in mid-season, commencing to yield soon after the Forty Days Edible-podded Pea, but continuing to bear for a much longer time, and the size and fine appearance of its pods cause it to be always more sought after than any other kind, so that it is more extensively grown than any other variety of Edible-podded Peas, especially in the eastern parts of France and in Switzerland. It is rather surprising to see the comparatively low estimation in which the Edible-podded peas are held in the vicinity of Paris.

Tall Butter Sugar Pea (natural size).

Two different forms are grown under the same name of Large Crooked Sugar Pea. The commonest is that just described. The

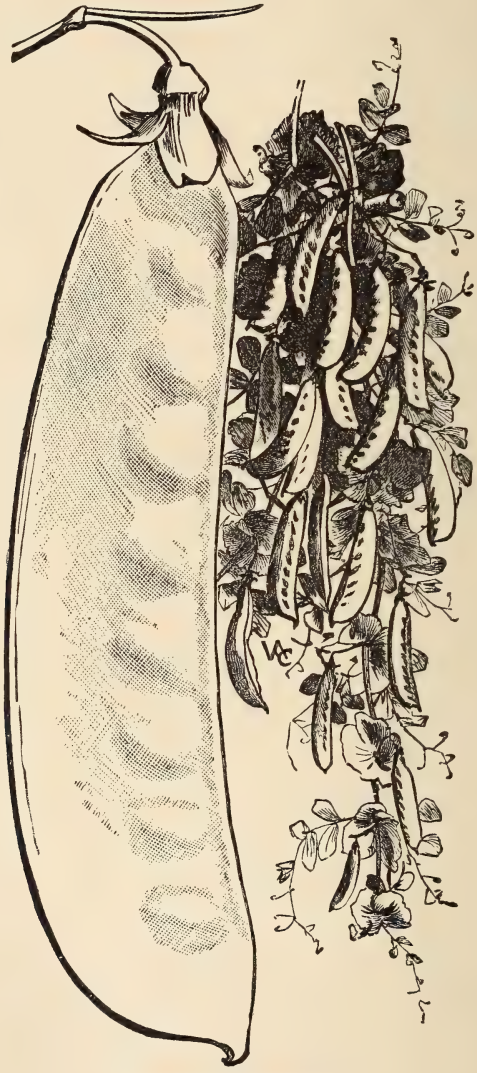
other, sometimes known as the Lyons variety, is not quite so tall, is five or six days earlier, and the pods are generally solitary, but large and very fleshy.

Melting Saint-Desirat Pea. — An excellent and beautiful Pea. It resembles a Scimitar Sugar Pea, excepting that it is straight-podded. The pods are very large, tender, thick, fleshy, swelling long before the seed is fully developed.

Giant Very Large-Podded Sugar Pea. — A climbing variety with large, broad, light-coloured leaves. Stems tinged with purple, and usually from $3\frac{1}{2}$ to $4\frac{1}{2}$ ft. high; flowers purplish, sometimes solitary and sometimes in pairs; pods very large, pale green, very much twisted, sometimes over 6 in. in length and more than 1 in. broad. The two sides or halves of the pod are generally, as it were, glued together, with no space between them except that which is completely filled by the peas, the positions of which are distinctly marked on the outside of the pod, where it bulges over each pea. Each pod contains from six to ten large peas, slightly angular or flattened in shape, and light green in colour, turning to gray finely spotted with brown-red when ripe. The main stem carries from six to eight tiers of pods, and the branches, which are usually two or three in number, have hardly half that number. The pods of this variety are best for table use when young, as when they are near ripening both they and

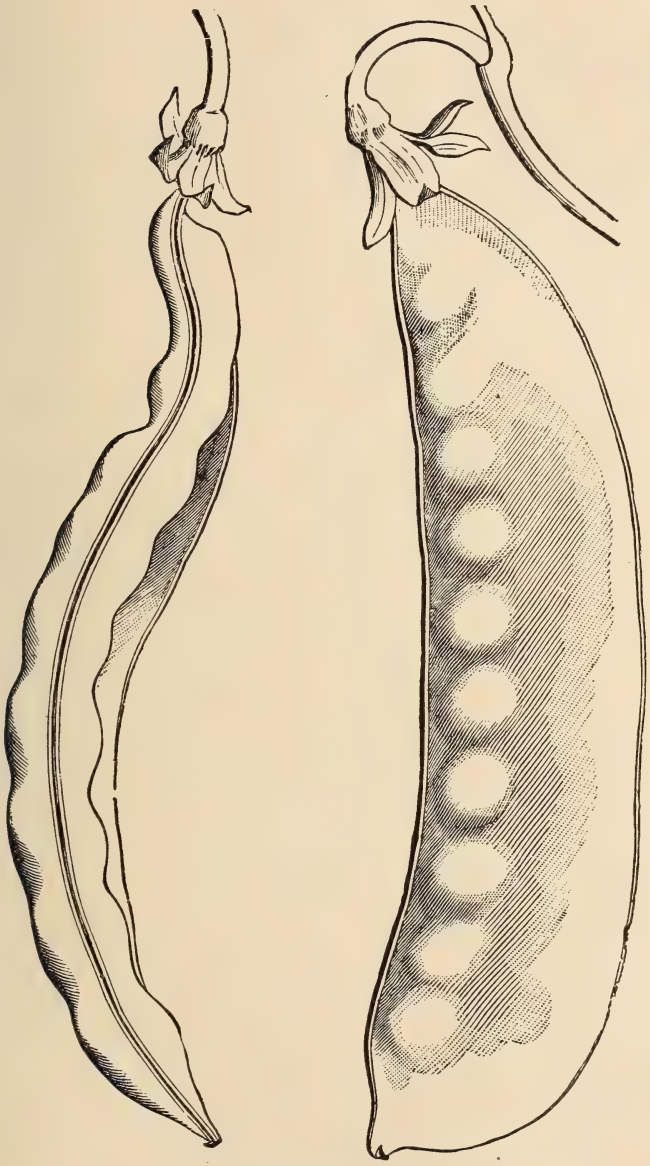
Pods of Large Crooked, or Scimitar, Sugar Pea (natural size).

the peas acquire the somewhat strong, hot taste which characterises all Peas with purple flowers. The peas, perfectly green when



Melting Saint-Desirat Pea.

young and tender, turn gray or brown in cooking. There are two very distinct forms of the Giant Sugar Pea, one of which is taller, more vigorous growing, and at the same time later than



Giant Sugar Pea.

the other, and almost always produces the pods in pairs. The pods of the other, or earlier form, are perceptibly larger, but are usually solitary.

Under the name of *White-flowered* and *White-podded Sugar Pea*, a variety is grown in Germany which is very late, very branching, with stems from 5 to 6 ft. high, almost white or wax yellow in colour, and bearing large broad leaves of a light green colour; the stipules are marked with a circle of the same purple colour as the stem at the place where they clasp it. The flowers are in pairs and pure white; they do not commence to bloom before about the sixteenth joint of the stem. The pods are straight, pointed at the end, about 3 in. long, and pale yellow, almost butter-colour; they contain seven or eight peas, which are white and round when ripe. This is a rather productive variety, but very late and of only middling quality. It is very liable to degenerate, and then has green stems and pods.

B. Half-Dwarf and Dwarf Varieties

Early Dwarf Brittany Sugar Pea.—A half-dwarf variety, from 2 to 2½ ft. high. Leaves rather slight, small, and gray and glaucous green; stem rather short jointed towards the base; flowers white, medium-sized, usually in pairs, and commencing to bloom at about the twelfth joint of the stem, immediately below which there are generally two branches of no great size, bearing from two to four tiers of pods which are most commonly solitary. The main stem ordinarily carries from seven to ten tiers of pods, which are produced in pairs, are of a pale, grayish, green colour, and are not much over 2 in. in length; they are narrow, tolerably swollen and fleshy, quite free from membrane, each containing from five to seven white peas, of

Early Dwarf Brittany Sugar Pea.

Pods (natural size).

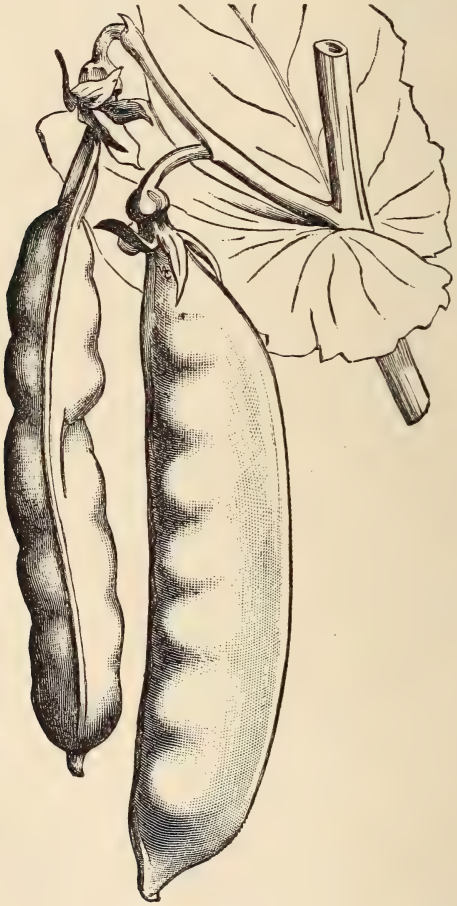
square shape; when ripe gray-white, irregular in shape, but rather rounded. The stems of this variety are very stiff, and as they are also numerous and short jointed, the tendrils interlace the plants together in such a manner that they mutually support one another, and grow erect without needing any stakes, although they attain some height. This property is worthy of note, as many other varieties which are of dwarfer growth are very much inferior to it in this respect.

Dwarf Debarbieux Sugar Pea.

Dwarf Debarbieux Pea.—About 3 ft. in height, with stems supporting each other by their tendrils intertwining so as to require no staking. The pods are long, slightly curved, and crowded at the top of the stems. The peas are large, round, and white when ripe. Originated in the North of France, it is a rather late variety, and fit for pulling about the same time as the Ram's-horn or Scimitar Pea.

Very Dwarf Dutch Frame Sugar Pea.—A very dwarf variety, not exceeding 8 to 10 in. in height. Stem very zigzag in growth, and with joints so short that it is difficult to count

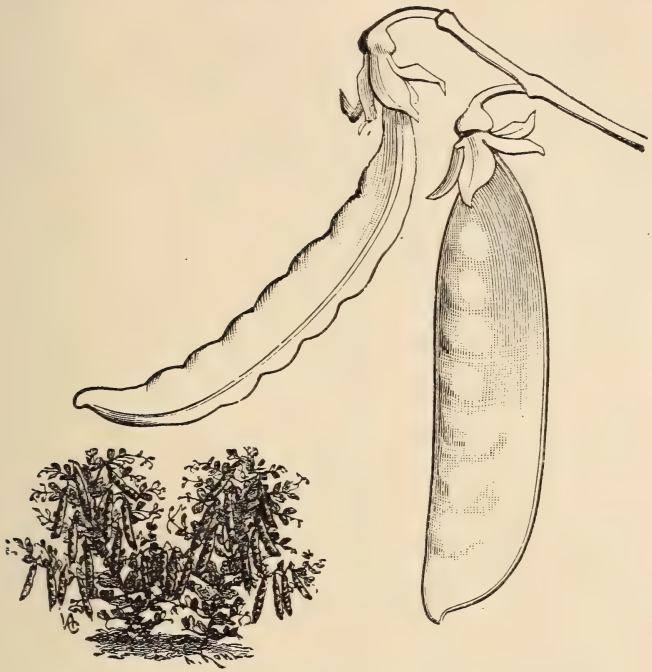
them exactly; it usually commences to branch at about the seventh joint, and to flower from the eighth to the tenth joint. Flowers of medium size, very white and often solitary. The pods, which are borne in from five to seven tiers on the main stem and in from two to four tiers on the branches, are whitish green, rather



Dwarf Debarbieux Sugar Pea. Pods (natural size).

narrow, and well filled with white and large peas, from five to seven in each pod. With the exception of the "strings," which are rather tough, the pod is thick, fleshy, and quite free from membrane. This variety is almost as early as the Early Frame Pea, and, like it, is especially adapted for forcing. There is a sub-variety of it,

which most usually produces solitary pods somewhat larger than those of the ordinary kind, and has larger and darker-coloured



Very Dwarf Dutch Frame Sugar Pea. Pods (natural size).

leaves, but it possesses no special merit to recommend it in preference to the form which has just been described.

Other French Varieties

A. *Shelling Peas*

Pois Bivort.—A climbing variety, of moderate height and early, with smooth white peas. It hardly differs from the Early Emperor Pea.

P. Blanc d'Auvergne.—A late kind, with a tall, very branching stem. Flowers white; pods very small and narrow, but well filled; peas white, square in shape. This is a good variety for feeding cattle, but comes in too late in the season to be of any great use as a kitchen-garden plant.

P. Café.—A Canadian variety of the cattle-feeding class, tall and late, with red flowers and brown peas, which are somewhat elongated and flattened in shape.

P. de Cérons Hâtif.—A climbing and rather early kind, resembling the Early Emperor in its earliness, and the Early Frame Pea in its vigorous growth and great productiveness.

P. de Commenchon.—This is a good early Pea, coming in several days before the Early Emperor, but still not so early as Sangster's No. 1. It has rather large leaves and broad pods, which latter are as often solitary as in pairs. The peas are smooth, white, and large.

P. Dominé.—A sub-variety of the Early Frame Pea, later and more productive than the ordinary form. It has now almost entirely gone out of cultivation.

P. Doré.—A climbing variety, coming in nearly at the same time as the White Scimitar Pea. Leaves large and very light coloured; flowers white; pods in pairs, long and narrow, and yellow-green in colour, as are also the peas.

P. Fève.—In its habit of growth this variety rather resembles the Marly Pea and its allies, but is distinguished from them by the shape of its peas, which are somewhat oblong and are marked with a black spot on the *hilum.*

P. Géant.—A large late Pea, with a very tall stem. Flowers violet-coloured; pods large, in pairs; peas square in shape, grayish in colour, or slightly speckled with black; *hilum* black.

P. le Plus Hâtif Biflore, de Gendbrugge.—An early kind, coming very near the Early Emperor, from which it is distinguished by being a little earlier and not quite so vigorous in growth.

P. Gros Jaune.—A very distinct variety, of a very light, almost yellowish, green colour in all its parts; often one-flowered. The pods and peas resemble those of the *Pois Carré Blanc.*

P. Gros Quarantain de Cahors.—This is a climbing variety, coming very near the Marly Pea, but a little earlier. The peas are white and large.

P. de Lorraine.—This is more a cattle-feeding than a kitchen-garden Pea. It is very late, and has very small pods.

P. de Madère.—A climbing kind, rather like the Marly Pea in its habit of growth, but distinguished from it by its peas having a black spot on the *hilum.* It differs from the *Pois Fève* in the whiteness and well-rounded form of the peas.

P. Michaux à Œil Noir (Black-eye Pea).—This variety is very distinctly characterised by the black spot on the *hilum* of the pea. It comes in about the same time as the Ruelle Michaux Pea, is productive, and is said to succeed very well in warm climates.

P. Michaux de Nanterre.—This is a sub-variety of the Early Frame Pea, a little later than the ordinary form, but not quite so late as the *Pois Dominé* mentioned above.

P. Michemolette.—A climbing, half-late kind, with large, long pods, but only moderately productive. It comes very close to the *Pois de Gouvigny.*

P. Migron.—A good, very early, and productive climbing Pea, very closely allied to the English varieties, Dickson's First and Best and Daniel O'Rourke.

P. Nain Gros Blanc de Bordeaux.—A variety very much esteemed in its native district for growing on a large scale in market-gardens. It is half-dwarf, two-flowered, and a little later than the Common Dwarf Pea, but has larger pods and peas.

P. Nain Gros Sucré.—A very dwarf variety, scarcely as high as the Brittany Very Dwarf Pea. Leaves narrow and light green; flowers in pairs; pods short and rather narrow, each containing from six to eight pale, smooth, regular-shaped peas. This variety appears to be at present lost to cultivation.

P. Nain Vert de St. Michel.—A very productive variety, growing about 20 in. high, with stiff, thick-set, branching stems. The pods, which are produced in pairs, are well filled with medium-sized, round, green peas.

P. Nain Vert Petit.—A half-dwarf, very distinct kind, about 2½ ft. high, with a branching stem. Leaves rather slight and dark green; flowers very white; pods narrow, slightly curved; peas small, green, and very round. This variety is a trifle later than the Blue Prussian and the Imperial Dwarf Green Pea.

P. Quarantain.—A variety which is very generally grown in the neighbourhood of Paris, especially in the vicinity of St. Denis. It is a very early climbing kind, usually with solitary flowers, and in point of earliness does not differ much from the English variety, Dickson's First and Best.

P. Quarante-deux.—This is grown in the same localities as the preceding variety, and comes in later. It is a good variety, with short but well-filled pods. The stems are rather slender. It is somewhat earlier than the Early Emperor. Some growers distinguish two forms of it—one as early as the Early Emperor, but yielding for a shorter period, and the other almost as early as Sangster's No. 1. This latter form seems to be confounded with the *Pois Quarantain.*

P. Remontant Vert à Rames (Green Branching Pea).—A rather slender and tall-stemmed variety, almost as early as the White Scimitar Pea. Flowers often solitary; pods long and slender, each containing seven or eight round dark green peas.

P. Remontant Vert à Demi-Rames.—A half-dwarf, very branching kind, which continues bearing for a long time. It is pretty closely allied to the *Pois Nain Vert Petit* (mentioned above), but is distinguished from it by the somewhat larger size of the peas.

P. Ridé très-nain à Bordures.—Was in favour for growing as an edging to beds of other vegetables, until the introduction of the American Wonder and William Hurst Pea superseded it.

P. Vert Nain du Cap.—This is rather a half-dwarf than a really dwarf variety, with stiff branching stems, and flowers in pairs, exhibiting a considerable resemblance to the Blue Prussian Pea, but with peas of smaller size and not so blue in tint. It is not a very productive kind.

B. *Edible-podded, or Sugar, Peas*

Pois de Commenchon Sans Parchemin.—A climbing variety, not more than from 3½ to 4 ft. high, almost as early as the Early Emperor. Flowers white, large; pods medium-sized, whitish.

P. Friolet Sans Parchemin.—A climbing kind, very much like the Ruelle Michaux Pea, but entirely free from membrane. Pods straight, somewhat swollen, and pale in colour.

P. Mange-tout Demi-nain à Œil Noir.—A half-dwarf early variety, coming in a few days earlier than the Early Dwarf Brittany Sugar Pea. Flowers violet-coloured; pods small, slightly twisted; peas gray, not spotted, and with a black *hilum.*

P. Sans Parchemin à Cosse Jaune.—A half-early climbing variety, with large light green leaves. Flowers white, tinged with yellow, in pairs; pods long, rather broad, entirely free from membrane, and green-yellow; peas somewhat long in shape, and light yellow.

P. Sans Parchemin à Fleur Rouge (Tall Red-flowered Sugar Pea).—A tall late Pea, with the stem usually branching. Flowers pale red, not violet-coloured, in pairs; pods medium-sized, narrow, somewhat curved, sometimes slightly twisted; peas pale brown, marbled with red.

P. Sans Parchemin Très Hâtif à Fleur Rouge.—A climbing variety, almost as early as Sangster's No. 1. Stem thin and slender, seldom exceeding about 3 ft. in height; flowers violet-coloured, with a red keel, commencing to bloom very low down on the stem; pods small, whitish, and very free from membrane.

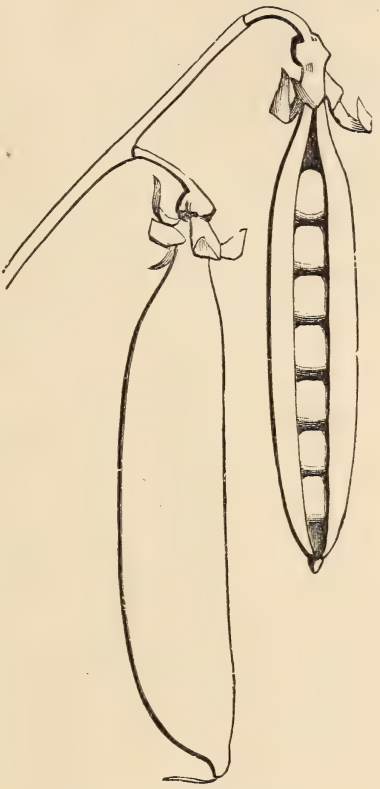
P. Sans Parchemin Nain Capucin.—This variety is very much grown in the north of France, where it is highly esteemed. It somewhat resembles the Early Dwarf Brittany Pea, and is hardy, exceedingly productive, very free from membrane, and comes in half-early. The plant grows from 20 in. to 2 ft. high, and the peas are round, white, and very smooth.

P. Sans Parchemin Nain Gris (Dwarf Gray Sugar Pea).—A distinct, half-dwarf, branching variety, with violet-coloured flowers and small and very numerous pods. It has been generally superseded by the early white-flowered varieties.

P. Sans Parchemin Nain Hâtif de Hollande.—A dwarf variety, growing from about 20 in. to 2 ft. high, and a true early kind, as it flowers about the same time as the Ruelle Michaux Pea. Pods rather small, between 2 and 3 in. long and $\frac{3}{5}$ in. broad, slightly curved, and quite free from membrane.

P. Sans Parchemin Nain Ordinaire (Common Dwarf Sugar Pea).—This variety differs very little from the preceding one. It comes in a day or two later, but is hardier and rather more productive. Both varieties are now superseded in cultivation by the Early Dwarf Brittany Sugar Pea.

P. Sans Parchemin Ridé Nain (Knight's Dwarf Marrow Sugar Pea).—This is rather a half-dwarf than a really dwarf kind, as it grows from about $2\frac{1}{2}$ to upwards of 3 ft. high. Flowers white, in pairs; pods small, numerous, generally curved, and free from membrane; peas wrinkled, small, square or flattened. This is a very distinct variety, but it has the fault of being somewhat late. The peculiarity of the pea being wrinkled adds nothing to the merit of the variety as a Sugar Pea.



Knight's Dwarf Marrow Pea.

Other English Varieties

A. *Round or Smooth-skinned Peas*

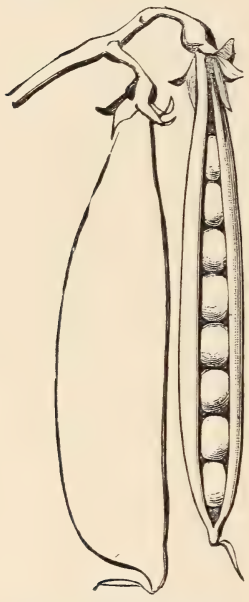
Batt's Wonder.—A half-dwarf, rather thick-set kind, with large dark green leaves. Flowers in pairs; pods long and slender, slightly curved and pointed; peas round, sometimes square from pressure in the pod, and dark green. A productive, hardy, and somewhat late variety.

Beck's Gem.—A dwarf variety, seldom exceeding a foot in height. Stem stiff, often branching; flowers white, in pairs; pods

rather short, and broad; peas large, pale in colour. A half-early and, notwithstanding its dwarfness, a rather productive variety.

Bedman's Imperial.—A climbing variety, about 4 ft. high, with flowers sometimes solitary, and sometimes in pairs. Pods long, and very slightly curved, but blunt at the end; peas large, somewhat oblong in shape, green. Ripens half-early.

Blue Dwarf English.—This variety differs from the Common Early Dwarf Pea in having leaves of a more yellow tint, stem a little taller, flowers almost always in pairs, and pods not quite so long, but more pointed. This kind is suitable for growing in the same way as the Common Early Dwarf Pea.



Blue Dwarf English Pea.

Blue Prussian. — A half-dwarf kind, growing from about 2½ to over 3 ft. high. Pods generally in pairs, seldom solitary, almost straight, and square at the end; peas large, round, very green; bluish when ripe. This is one of the kinds which are most extensively grown by market-gardeners.

Blue Scimitar. — A half-dwarf kind, seldom exceeding about 2½ ft. in height, and of a very vigorous growth. Pods pretty often solitary, long, slender, very much curved, and pointed at the end; they are very well filled, each containing from eight to ten rather large and very green peas. This variety also is very much grown by market-gardeners.

Charlton. — At the present day this variety is almost lost to cultivation, but formerly it was very much grown and highly valued. In England it seems to have been the equivalent of the French *Pois Michaux de Hollande* or *Early Emperor*. It was a climbing variety, with white round peas, grown for an early crop.

Claudit (Am).—A half-dwarf variety, ripening mid-season, fairly productive; the stems rather slender; the pods long and numerous; the seed round and light green.

Dickson's Favourite.—A climbing Shelling Pea, very closely allied to the White Scimitar Pea in its habit of growth, its earliness, and the appearance of its pods and peas. In fact, the two varieties might almost be considered identical.

Earliest of All (Laxton).—A tall, very early, not very productive variety, with slender stems.

Early Emperor.—A climbing variety, with round white Peas, almost exactly like those of the *Michaux de Hollande*, or Double-

blossomed Frame Pea. Differs from it only in being frequently one-flowered.

Early Kent.—This is almost exactly the kind which was formerly grown in France under the name of *Prince Albert.* At the present day the latter name is applied to a variety which comes in somewhat earlier and almost corresponds to Dillistone's Early Pea.

Fairbeard's Surprise.—A climbing variety, about 5 ft. high. Flowers white, large, generally solitary ; pods long, rather broad, faintly curved, and rounded at the end ; peas large, very green, and slightly oval in shape. A very early kind.

Flack's Imperial.—A half-dwarf kind, usually not more than about 3 ft. high. Pods pretty often solitary, but most usually in pairs, long and rather broad, slightly curved, and square at the end ; peas large, and somewhat oval in shape, becoming slightly blue when ripe.

Harbinger.—This is the earliest of all Shelling Peas. It is a small-sized and exceedingly slender climbing Pea, remarkably like Dillistone's Early Pea, but coming in two or three days earlier. Flowers solitary ; pods short and very slender ; peas small, round, and green when ripe.

Kentish Invicta (*East's Kentish Invicta*).—This may be described as a green-seeded Daniel O'Rourke Pea. It grows to nearly the same height, is equally early, and almost equally productive. The first flowers are often abortive.

Laxton's Evergreen.—Having for a time enjoyed a certain amount of favour, this variety appears to be now almost entirely neglected. It is a tall climbing Pea, with a rather slender and very branching stem, bearing slender, slightly curved pods of medium length. The peas are round and small, and, when ripe, a peculiar olive-green, easily recognised.

Laxton's Prolific Long-pod.—A tall climbing variety, 5 ft. or more in height. Leaves very large, and light coloured ; flowers in pairs ; pods almost like those of the White Scimitar Pea in shape, fully one-third longer and thicker, but far less numerous ; peas white, irregular in shape, not perfectly smooth, without being wrinkled.

Laxton's Superlative.—A tall climbing, thick-stemmed Pea. Leaves broad and luxuriant, but not tufty ; pods almost always in pairs, often nearly 5 in. long, very much curved, pointed, and greatly swollen when ripe. They are not, however, very well filled, each pod only containing from six to eight small round peas, when ripe pale green.

Laxton's Supplanter.—A half-dwarf variety, with large, rather dark, but very glaucous leaves. Stem usually single, commencing to flower at the seventh or eighth joint ; flowers white,

seldom opening fully, and usually in pairs ; pods about 3¼ in. long, dark green, remarkably broad, especially at the lower end, each containing from six to eight very green peas, flattened at the sides and square. They retain their deep green colour when ripe, at which time they are flat in shape, angular, and sometimes slightly hollowed on the faces. The stem usually carries from eight to twelve tiers of pods. This is a productive variety, continuing to yield for a long time.

Laxton's Unique.—This is a very dwarf variety, growing from 12 to 14 in. high, with a usually branching stem. Pods in pairs, rather broad, tolerably curved, of medium length, and pointed at the end ; peas round, rather small, half white and half pale green when ripe.

Paradise Marrow.—A vigorous-growing climbing Pea, 5 to 6 ft. high, usually branching. Pods sometimes in pairs, but generally solitary, 4 in. long at least, broad, square at the end, and very slightly curved, well filled ; peas seven to nine in each pod, large and sweet, becoming round and white when ripe.

Peruvian Black-eye Marrow.—An American variety resembling the *Pois de Madère*. It is also very like the Marly and Gouvigny Peas, but is distinguished from them by having a black spot on the *hilum*.

Philadelphia Extra Early.—Another American kind. A handsome climbing, very early Shelling Pea, very much resembling Daniel O'Rourke. Peas white.

Prizetaker Green Marrow.—A rather slender climbing Pea. Leaves medium size, glaucous green ; stipules very broad, dark green, distinctly blotched with gray-green ; stem slender, long jointed, sometimes single and sometimes with one or two branches ; flowers almost always solitary, usually commencing to bloom at the twelfth joint of the stem ; pods dark green, from about 3 to nearly 4 in. long, faintly curved like a pruning-knife blade, and quite square at the end. Each pod contains from eight to eleven smooth green peas, which completely fill it, and are usually misshapen by being pressed against one another.

Royal Dwarf (*White Russian*).—A half-dwarf variety, about 2½ ft. high, branching. Pods generally solitary, rather broad, very faintly curved, each containing five or six large peas, somewhat oval in shape, and very white when ripe.

Shilling's Grotto.—A climbing Pea, about 4 ft. high, not branching. Pods long, narrow, and slightly curved, each containing seven or eight peas, which become white and round when ripe.

William the Conqueror.—Half-dwarf, pretty early, pods slightly curved, resembling those of William Hurst, but its seed is round.

Woodford Marrow.—A half-dwarf variety, with a stout, often branching stem, about 3 ft. high. Leaves dark green, glaucous ;

pods sometimes solitary, sometimes in pairs, long, rather slender, and of a dark green colour. Each pod contains seven or eight peas, which, from being closely pressed against one another, are square, and, when ripe, olive-green, like those of Laxton's Evergreen Pea. *

B. *Wrinkled Peas*

Abundance (*American*).—Comes pretty near Stratagem, and apparently not superior to it.

Admiral (*Am.*).—A tall variety, somewhat earlier than our Knight's Wrinkled Pea; pods blunt at the end, produced in pairs, slightly curved; seed white, wrinkled.

Admiral Dewey (*Am.*).—Resembles very much the Telephone.

Alderman.—Comes near the Duke of Albany, but the pods are more regularly produced in pairs.

Ambassador.—A tall variety; resembles Duke of Albany.

Captain Cuttle.—A half-dwarf variety, with large glaucous leaves; pods large, regularly produced in pairs; seed green and wrinkled.

Celebrity.—A tall variety; resembles very much Duke of Albany.

Champion of England.—Of medium height, very branching; pods produced in pairs; seed green and wrinkled.

Connoisseur.—A vigorous kind, rather late, but productive, and considered to be of exceptionally fine quality. Notwithstanding its high character, it does not appear to be very much grown.

Criterion.—A climbing variety, very productive, half-early, about 4½ ft. high, with rather slender stems, scanty leaves of pale green colour; pods long, straight, well filled; the peas remain green, and become much wrinkled at maturity.

Crown Prince (*Am.*).—A dwarf variety, resembling somewhat the White Eugénie, but with shorter and broader pods.

Daisy.—A late dwarf variety, with wrinkled seed; leaves light green; resembles very much Pride of the Market.

Dr. Hogg.—An excellent, early, and fairly productive climbing variety, with a slender stem, seldom exceeding 4 ft. in height. Leaves slight; pods usually solitary, long, very much curved, and exceedingly well filled; peas large, square, and remaining green when ripe. This variety is at least as early as the Early Emperor.

Dr. MacLean.—A half-dwarf variety, with handsome, long, curved pods, about 3 in. in length, but not very numerous and not always well filled. A half-late kind.

Duke of York.—Pretty early, 2½ ft. or so in height. Pods often produced in pairs, broad and long; seed green and wrinkled.

* Select List of Peas (Early Dwarf Varieties), see pp. 768, 769.

Early Maple.—A small slender variety, with purple-coloured flowers, remarkable for nothing except its very great earliness. It comes into flower about the same time as Sangster's No. 1.

Exonian.—A tall, very early, and very productive variety; leaves dark green; seed pale green and wrinkled.

Gardener's Delight.—A climbing, tall variety; stems very branching, but rather slender; few leaves; pods short, broad, always in pairs, and containing from five to eight large peas, which become white and wrinkled when ripe. Continues bearing for a long time.

Giant Emerald Marrow.—Very closely allied to Knight's Tall Marrow, but distinguished from it by the light green of its leaves, which glisten like those of Sutton's Emerald Gem. It is a rather late kind, with large white wrinkled peas.

Hair's Dwarf Mammoth.—A half-dwarf variety, exceedingly vigorous. Stem thick and strong, about 2½ ft. high, and often branching; pods in pairs, long and broad, very slightly curved, and well filled; peas green, wrinkled.

Hay's Mammoth (*Tall White Mammoth, Ward's Incomparable*). —A vigorous-growing climbing Pea, attaining a height of 6½ ft. Stem thick and stout, generally branching; pods usually in pairs, long, broad, nearly square at the end, but very much narrowed towards the stalk; peas white, wrinkled. This is a late variety, but continues bearing for a long time, often until very late in autumn.

John Bull.—A very handsome, half-dwarf Wrinkled variety, with fine long pods and green peas. It comes in a little earlier than MacLean's Best of All Pea.

Kelvedonian.—A tall, half-early variety, less productive than Duke of Albany; pods broad, long, straight; seed green, wrinkled.

King Edward VII.—A very distinct kind, 19 or 20 in. high; leaves light green, curled; pods dark green, slightly curved; seed green, wrinkled.

Laxton's Marvel.—A half-dwarf variety, with long, slightly curved pods; and large green wrinkled peas.

Laxton's Omega.—A half-dwarf kind, dark green in all its parts, very late, and named so as to indicate that it closes the list of Peas. The pods are thin, long, slightly curved, blunt, well filled with green peas very closely set together and not very much wrinkled when ripe, but rather square and hollowed on the sides, and in colour light green.

Little Gem.—A very dwarf kind, 12 to 16 in. high, vigorous, and usually very branching. The pods are rather small, but broad, straight, and well filled. The peas, when ripe, are pale coloured, bluish, and wrinkled.

May Queen.—A tall early variety; leaves light green; pods broad and blunt at the end; seed green, wrinkled.

Minimum.—An exceedingly dwarf variety, with white wrinkled peas.

Multum in Parvo.—A very dwarf kind, about 1 ft. high, of compact and thick-set growth. Leaves broad and rather numerous, of a deep blue-green; pods usually solitary, short and rather broad, and narrowed towards the end; peas pale green or greenish white when ripe. A rather early variety.

Ne Plus Ultra (*Payne's Conqueror, Cullingford's Champion*).—A very tall-growing late Pea, sometimes over 6½ ft. high. Pods numerous, commencing at about one-third the height of the plant, usually in pairs, long, broad, perceptibly curved, and very narrow towards the stalk; peas very large, somewhat oval, and green and wrinkled when ripe. First-class quality.

Nelson's Vanguard.—A half-dwarf Wrinkled Pea. Leaves rather large; pods borne in pairs, of medium length, but rather broad. This variety comes into use about the same time as the Early White Dwarf Wrinkled Pea, but is of a more compact and thick-set habit of growth.

Norwich Wonder.—A sub-variety of Telephone, with shorter pods.

Nott's Excelsior (*Am.*).—A small dwarf variety, a little taller than American Wonder, which it resembles.

Nutting's No. 1.—A branching, rather vigorous-growing, but really dwarf variety. Stem stiff, about 20 in. high; pods numerous, in pairs, of moderate length, but well filled, nearly straight, and blunted at the end; peas white, wrinkled. A very early kind, and one of the best Dwarf White Wrinkled Peas.

Pioneer.—A small climbing variety, with fine slender stems, like those of Sangster's No. 1. Pods of medium size, usually solitary, straight, palish coloured, each containing five or six peas, which become white and wrinkled when ripe.

Princess of Wales.—A half-dwarf variety, seldom exceeding 2½ ft. in height. Leaves pale, rather numerous; pods short, broad, blunt, whitish, very close together at the top of the stem owing to the shortness of the joints; peas wrinkled, pale green, and sometimes almost white.

Sharpe's Early Paragon.—A climbing kind, half-early, remarkable for the large size and light green of its leaves: pods broad, pale green, blunt, thick; peas green, wrinkled, and fairly large.

Standard.—A half-dwarf kind, about 2 ft. 8 in. high. Stem stout, and very leafy; leaves pale green, pods long, pointed, very much curved, rather swollen, each containing about ten large round peas, which become wrinkled when ripe, some of them remaining green, while others turn perfectly white.

Tall Green Mammoth, or **King of the Marrows.**—A very tall and very late variety, exceeding 6 ft. in height. Stems very

branching; pods large, broadening towards the end; pea medium-sized, wrinkled, and green.

Telegraph.—This variety comes near Telephone, but is distinct. It grows 4 ft. high, and bears very numerous long, broad pods, containing large peas, which, when cooked, are a deep green colour and of excellent flavour.

The Sherwood.—A dwarf kind, with broad leaves; pods straight, dark green, well filled; seed green and wrinkled.

Wem.—A late sort, 3 ft. in height, producing an abundance of thick pods, solitary or in pairs; seed wrinkled, oblong, and light green.

Yorkshire Hero.—Half-dwarf, bearing on the top of the stems broad short pods; seed large, green, flattened, wrinkled, and of good quality.

German Varieties

Buchsbaum-Erbse.—A very dwarf Shelling Pea, rather like the Brittany Dwarf Pea, but coming in a little earlier and having somewhat larger pods. The name is also applied to a very dwarf and thick-set Edible-podded Pea.

Grosse Graue Florentiner Zucker-Erbse.—This variety is almost exactly the same as the old Giant Sugar Pea. It is a very tall, somewhat late kind, and usually produces flowers in pairs. The pods are nearly the same size as those of the Large Crooked Sugar Pea, and are generally straighter than those of the Giant Sugar Pea, which is now commonly grown, and which has been already described.

Pois Jaune d'Or de Blocksberg.—A Shelling Pea, rather like the White Scimitar Pea, but of a more slender habit of growth, not quite so tall, and somewhat earlier. It is particularly distinguished by the wax-yellow tint of its pods and fresh peas, but as a fine green colour is generally looked for in Peas, this is a defect.

Kapuziner-Erbse.—In Germany, and especially in Holland, this name is given to all kitchen-garden peas which have red flowers, and is chiefly applied to the Edible-podded Peas, as these are almost the only kinds with coloured flowers which are grown. There are both climbing and dwarf varieties of these peas.

Ruhm von Cassel Erbse.—A variety very closely allied to the White Scimitar Pea, and might almost be considered identical with it, only that its pods are straighter or less curved than those of that kind.

Frühe Heinrich's Zucker-Erbse.—A climbing Sugar Pea, of moderate height, rather like the Ruelle Michaux Pea. Flowers often solitary. A good and rather early variety, but not so productive as the good half-dwarf kinds, such as the Brittany Sugar Pea.

Holländische Grünbleibende Späte Zucker-Erbse.—A very tall late kind, with white flowers in pairs. Pods of medium size, much smaller than those of the Large Crooked Sugar Pea. This variety does not commence to bear until late in the season, but it continues bearing for a long time. It requires very tall stakes.

Sehr Frühe Buchsbaum de Grâce.—This Pea may, at the most, be considered only a sub-variety of the ordinary Dwarf Dutch or Dwarf Crooked Sugar Pea, being merely a little more slender in habit, and growing a trifle taller. It is not a very productive kind, but very early and exceedingly dwarf.

Zwerg-Buchsbaum de Grâce.—A very dwarf variety, with small, gray, slender, scanty leaves. The pods are not always free from membrane.

WINGED PEA

Lotus Tetragonolobus, L.; *Tetragonolobus purpureus*, Mœnch. *Leguminosæ.*

French, Lotier cultivé. *German*, Flügel-Erbse. *Flemish*, Vogelvitse. *Danish*, Asparges œrten. *Spanish*, Bocha cultivada.

Native of South Europe.—Annual.—An almost creeping plant, with stems spreading on the ground, about 1 ft. long and pale grayish green, of the same tint as the leaves, which are composed of three broad, short leaflets. Flowers a fine, slightly brown red; pods square, with membranous wings at the angles, from about 2¼ to over 3 in. long, and tolerably fleshy when young; seeds yellow, almost spherical, or slightly flattened. Their germinating power lasts for five years. This plant is grown in the same manner as Lentils or French Beans. The seed is sown in April where the crop is to stand, and the plants require no attention except watering in very dry weather. The pods, when young and tender, are eaten like Haricot Beans. The seed, when roasted, forms one of the many substitutes for coffee.

Winged Pea (1/10 natural size).

PEA-NUT, EARTH-NUT, or GROUND-NUT

Arachis hypogæa, L. *Leguminosæ.*

French, Arachide. *German*, Erdnuss. *Italian*, Cece di terra. *Spanish*, Cocahueta. *Portuguese*, Amenduinas.

Native of South America.—Annual.—A plant with weak, almost creeping, stems. Leaves consisting of two pairs of oval leaflets,

with a broad emarginate stipule at the base of the leaf-stalk; flowers yellow, solitary, in the axils of the leaves; pods oblong, often contracted in the middle, like a Bottle-Gourd, of irregular shape, reticulated, yellowish, each containing two or three nuts as large as good-sized peas, of an oblong shape, and covered with a brown or red skin. The germinating power of the peas lasts for only one year. A peculiarity of this plant is that the flowers insert their ovaries into the ground, where they complete their growth, and where the seeds or nuts ripen, at a depth of from 2 to 4 in. In America several varieties are grown, differing from one another in the size of the nuts and the number contained in each pod.

Pea-nut ($\frac{1}{10}$ natural size; detached fruit, $\frac{1}{2}$ natural size).

CULTURE.—The seeds or nuts are sown in spring, as soon as the frosts are over, and the plant succeeds best in light soils. Being a tropical plant, it may sometimes live and ripen its fruit in the west of Europe, but cannot be profitably cultivated here.

USES.—In warm countries the nuts are often eaten raw or parched. An oil, of the greatest value for economic purposes, is also extracted from them.

POTATOES

Solanum tuberosum, L. *Solanaceæ.*

French, Pomme de terre. *German*, Kartoffel. *Flemish* and *Dutch*, Aardappel. *Danish*, Jordepeeren. *Italian*, Patata. *Spanish* and *Portuguese*, Patatas. *Spanish* (*American*), Papa.

Native of the high mountain regions of South America.—Annual, but virtually perennial through its tubers.—The history of the discovery and the introduction of the Potato into Europe is rather obscure. It appears certain, however, that towards the close of the sixteenth century the plant began to be generally cultivated and used as a table vegetable. It was first grown in the Netherlands, Lorraine, Switzerland, and Dauphiné, and its cultivation extended even to Spain and Italy before it became common in the central and northern districts of France. In fact, it was not until after Parmentier had laboured and written on the subject, that the Potato was appreciated at its true value in the neighbourhood of Paris and the adjoining localities. Almost about the same time, its culture began to acquire some degree

of importance in England, and from that time forward it has extended most rapidly, and, in spite of the disease, which about the middle of the last century threatened complete ruin to its cultivation, the Potato still holds the first place amongst edible tubers.

Varieties of the Potato might be counted to the number of many thousands, if any one wished to record all that have been raised and recommended in different countries during the last hundred years. This extreme multiplicity of varieties has obliged us to pass over a very large number of them, and we shall confine ourselves to the description of fifty varieties or so which appear to us to be the most distinct and, at the same time, the most worthy of note.

The stem of the Potato is generally solid, more or less quadrangular, and often furnished with membranous wings at the angles. The leaves are compound, formed of oval leaflets, between which are often found small leafy growths, like leaflets of smaller size. The flowers are produced in axillary and terminal clusters, and have an entire, wheel-shaped, five-pointed corolla, varying in colour from pure white to purplish. Many varieties do not flower, and of those which do flower, a very great number never bear fruit. The fruit is rounded or very shortly oval, green in colour or (rarely) tinged with violet-brown, and averages about 1 in. in diameter. It contains, in the midst of a green and very acrid pulp, small, white, kidney-shaped seeds. These are never sown except for the purpose of raising new varieties.

The tubers, which are only underground branches swollen and filled with starchy matter, exhibit very great differences in shape and colour, according to the varieties. They are usually divided into the four classes of Round, Oblong, Long Notched, and Long Smooth Potatoes. To these characteristics, and those which are derived from the colour, may be added those which are furnished by the buds or shoots which are produced by the tubers when kept in a dark place. These are very constant in appearance and colour, and afford the means of distinguishing one variety from another with a considerable degree of accuracy. We believe few characteristics are so important as these for determining varieties, and in a work* recently published we thus spoke of them: "Whether the tubers have attained their full growth, or, on the contrary, have remained exceedingly small and puny; whether they have been fully ripened or not; whether, even, they are sound or diseased, provided they have enough vitality left to enable them to commence to vegetate, the buds or shoots always develop themselves with the

* "Essai d'un Catalogue Méthodique et Synonymique des Principales Variétés de Pomme de Terre," par Henry Vilmorin. Third edition. (Paris, 1902.)

same appearance and the same colour in the same variety"—on condition, of course, that the tuber has not been exposed, either before or during the growth of the shoot, for any length of time to the influence of light.

CULTURE.*—When grown in the open ground, Potatoes are usually planted in April, in holes or pockets at a distance from one another of from 16 in. to 2 ft., according to the vigour of growth of the variety. Entire tubers of medium size are the best for planting. They should be covered, at the time of planting, with soil to the depth of 4 or 5 in., and the practice is to earth up as soon as the stems have grown to a height of 6 to 8 in., the ground being then also hoed for the second time. The earthing-up is not absolutely necessary, but it has the advantage of causing the tubers to lie closer round the roots of the plant, so that they are more easily taken up. Potatoes ripen, or, at least, become good enough for use, from the beginning of June to the end of October, according to the varieties. When the tubers for planting have been exposed to the influence of light and air, they generally vegetate earlier and more vigorously; but, in this case, much care must be taken, when planting, not to break off the shoots which have commenced their growth.

There is some advantage in planting Potatoes in autumn, as the yield is generally somewhat heavier than it would be on the same area and with the same quantity of "seed" Potatoes if planted in spring. On the other hand, there is the danger of the "seed" perishing in the ground in very cold or too damp winters, and, besides, the planting should be done in October or November—a time when there is almost always much to do in the gardens or in the fields.

Potatoes may be forced under frames on a hot-bed of greater or less strength. Forcing may be commenced in December or January, and monthly plantings in the hot-beds may be continued up to the middle of March. The *Marjolin* Potato, which has very scanty leaves, is chiefly employed for this purpose. New forced Potatoes may be taken up in two and a half or three months after planting.

The culture of the Potato in the United Kingdom is so very extensive, and differs so much according to the district and the aim of the growers, that we have not space to do justice to it here. We therefore refer the reader to a small and handy book in which the culture in all its phases is carefully described, viz. Fremlin's "Potato in Farm and Garden," and the London market-garden culture is fully treated of in Shaw's "London Market-Gardens."

USES.—The tubers, either young or ripe, are eaten as a table vegetable. They are also used for feeding cattle and for the manufacture of starch and alcohol.†

* See also pp. 769, 770. † Spraying, see p. 771. Sprouting the Seed-Tubers, see pp. 771, 772. Diseases of Potato, see pp. 778, 780.

I. Round Yellow Varieties

Shaw, or Regent, Potato.—Tuber round, yellow, with a smooth or wrinkled skin, according to the kind of soil in which it is grown; eyes rather deeply sunk; flesh yellow and very floury; shoot a wax-yellow colour, violet-coloured at the base and at the extremity. Stems rather long, sometimes 3 ft. or more, pliable, almost always drooping, quite green, or very slightly tinged with brown, faintly winged, and almost always branching. Leaves short, numerous, dark and rather dull green; leaflets crowded closely together, reticulated, and always curled and wavy. Flowers very rarely opening,

Shaw, or Regent, Potato.

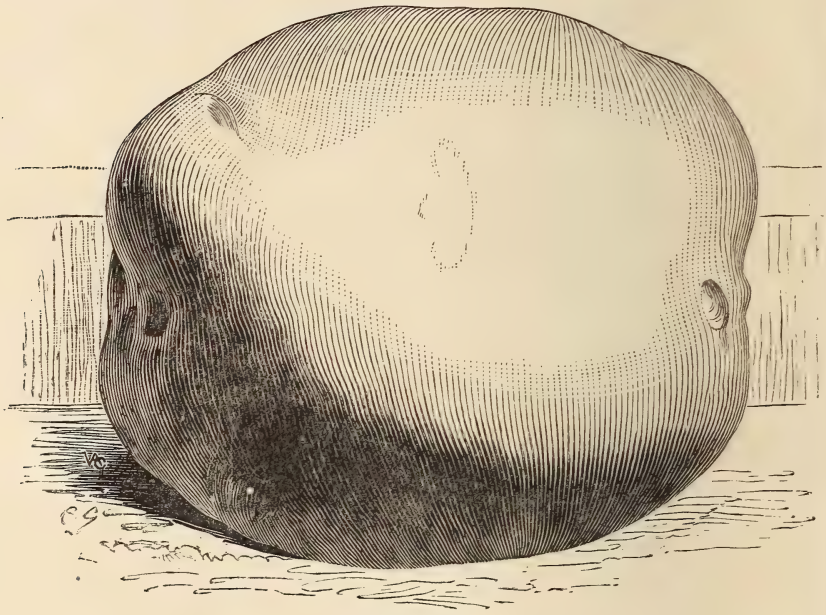
as they almost always fall off when merely small buds; when they do bloom, they are a pale bluish lilac colour. This variety is more extensively grown than any other kind of Round Yellow Potato in the vicinity of Paris. It is very productive, floury, and of excellent quality. If planted in April, the crop ripens in August.

The *Segonzac Potato* differs from this variety only by a few characteristics without any importance.

Early Round Yellow Potato.—This may be considered as a somewhat earlier form of the Shaw, or Regent, Potato, with usually rounder tubers, which also have fewer eyes. In growth it hardly differs from that variety. The stems, however, seldom exceed 2 ft. or 2 ft. 4 in. in length; the leaves are not so numerous, and

are a lighter green, those at the top of the stem being paler and yellower than those at the base. The flowers fall off while in the bud state. This is a very fine and excellent variety. If planted in April, new potatoes, fit for use, may be taken up about the end of July.

Golden-yellow Norwegian Potato. — Tubers medium-sized, rounded, sometimes slightly elongated, usually very regular ; skin of a handsome yellow colour ; flesh yellow, shoot violet. Stems slender ; leaves small, light green ; flowers flax gray. This is one



Cigarette Potato.

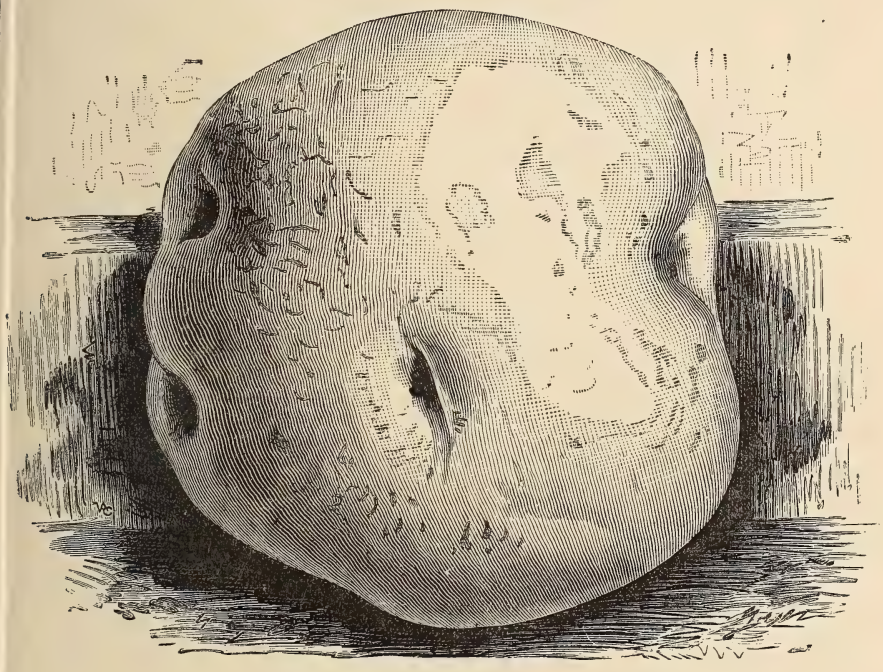
of the best Potatoes for table use, specially in a rather dry climate. In wet seasons it easily becomes diseased.

Cigarette Potato.—Tubers large, yellow, rounded or slightly long, flattened, very smooth ; flesh white ; shoot pink. The stems numerous, strong, somewhat angular, light green ; leaves rather scanty, with small oval-pointed leaflets, slightly hairy. The flowers fall off. This variety has against it, from a French point of view, the whiteness of its flesh, but it has excellent qualities. It is a heavy cropper, producing perfectly regular tubers very easy to peel. Ripens mid-season.

Up-to-Date Potato.—Tubers round, sometimes slightly elongated and flattened, almost without eyes ; skin yellow ; flesh pale

yellow, of sufficiently good quality to be used for the table; shoot pink. Stems high and vigorous; flowers lilac. An excellent variety, which ripens at about the same time as the Yorkshire Hybrid, and if inferior to it in quality, produces considerably heavier crops.

Canada Potato.—A large yellow tuber with the eyes hardly marked. It is rounded and slightly elongated; the shoot rose colour; stems vigorous, tall, and foliage abundant, and of a gray-green colour; the flowers white, in bunches, but producing seed very seldom. The Canada Potato is best for feeding cattle and for



Canada Potato.

industrial purposes. Imported from Canada some years ago by a French missionary, it has been made known principally by M. Paul Genest, the President of the Agricultural Comice of Lunéville.

Imperator Potato.—The tuber is rounded or slightly oblong, large or very large, pale yellow, with the eyes pretty deeply sunk. The flesh is white; the shoot violet. The stems are vigorous, tall, erect, quadrangular, bronzy, and bear large leaves with large rounded leaflets, sparsely set, which gives the foliage a rather light appearance. The flowers are large, lilac, and do not seed usually. It is a late variety, the tubers of which are remarkably rich in starch.

Besides its industrial value, it is also one of the most productive Potatoes known, having produced as much as twenty-six to thirty tons per acre.

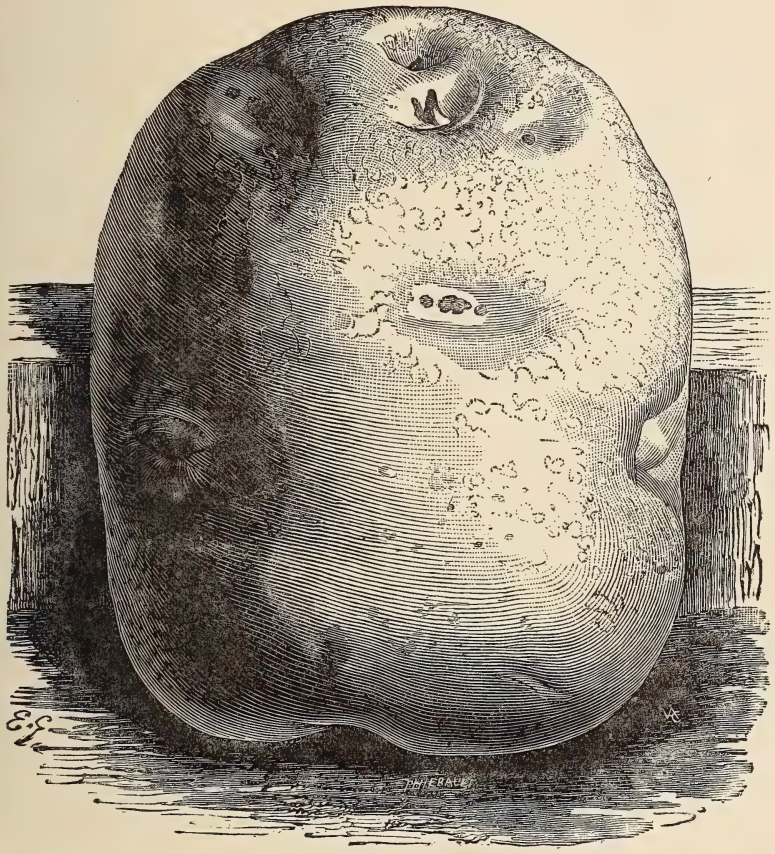
Agnelli's Jewel Potato.—The tubers resemble much those of Imperator, but are longer and pale yellow. The flesh is white; the shoot violet; the stems tall and very strong; the leaves like those of Imperator; the flowers ash-gray. A late variety, intro-

Imperator Potato.

duced from Austria, suitable only for feeding cattle or for the manufacture of starch. Yields regularly over twenty tons or so to the acre, and contains 18 per cent. of starch, or even more.

Professor Maerker Potato.—The tubers are large, yellow, rounded, with the eyes slightly marked; the flesh is white; the shoot violet; the flowers violet. It is a half-late variety which may be used for the table, but it is rather a field Potato, rich in starch, and not liable to disease.

Edouard Lefort Potato.—Tubers large, rounded, with well-marked eyes; yellow, somewhat wrinkled skin; flesh yellow, firm, floury, and agreeable to the taste; shoot waxy white, tinged purple at the base and at the point; stems little developed. This variety was introduced by M. Edouard Lefort as the result of a cross between Imperator and Marjolin. It is an early Potato, suitable,

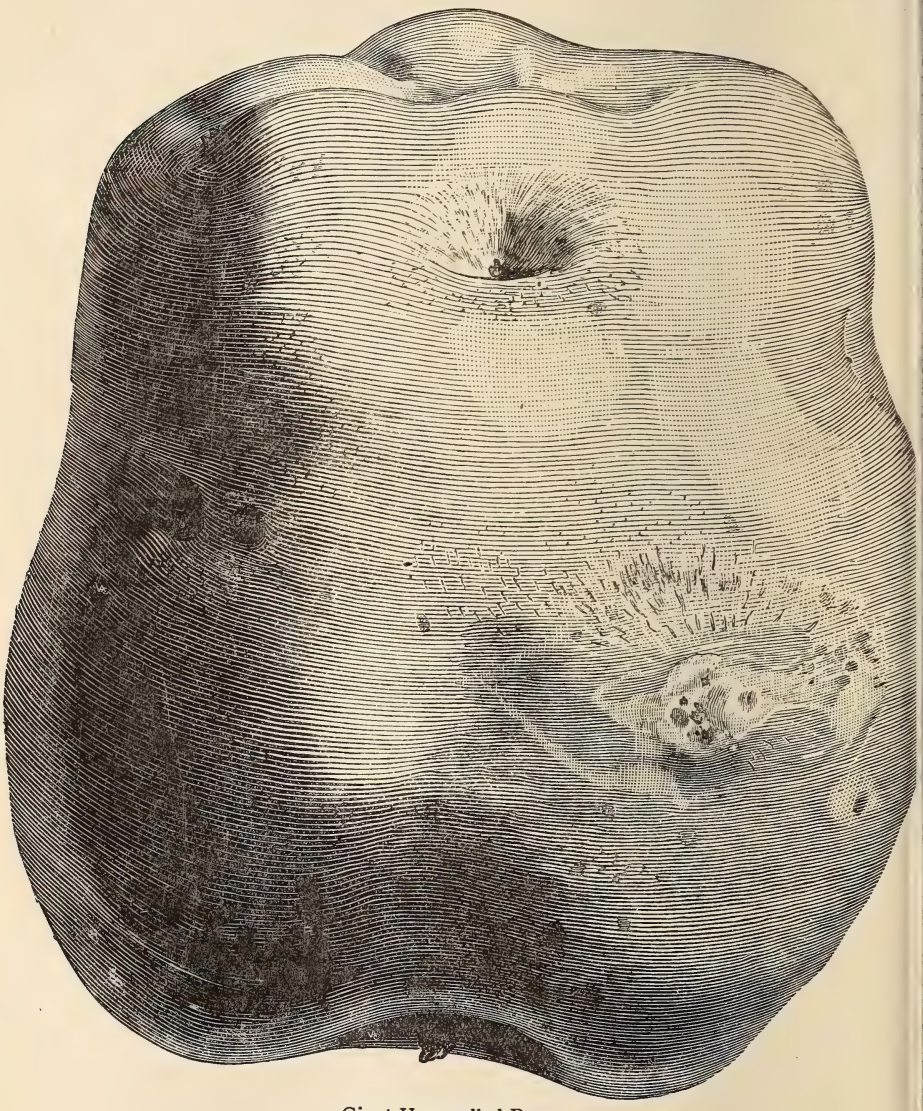


Edouard Lefort Potato.

however, for field culture. Planted at about 20 in. distant in rows about 24 in. apart, it can produce some 13 tons to the acre, available for market by the end of July.

Giant Unequalled Potato.—The tubers are very large, yellow, rounded, sometimes knobby, with deep-sunk eyes; the flesh yellow, and the shoot pink. The stems are numerous, strong, erect, light green, rounded or slightly winged; the leaves pale green, erect,

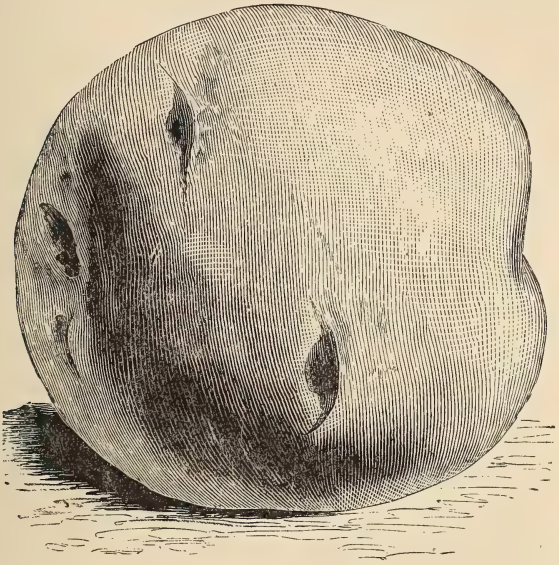
with leaflets crowded close, small, reticulated, and hairy. The flowers are white, and fall off without seeding. A late variety, still more



Giant Unequalled Potato.

productive than Imperator and richer in starch; fit for table purposes, but more especially adapted for industrial uses.

Séguin Potato.—Tuber rounded, medium-sized, and a grayish



Séguin Potato.

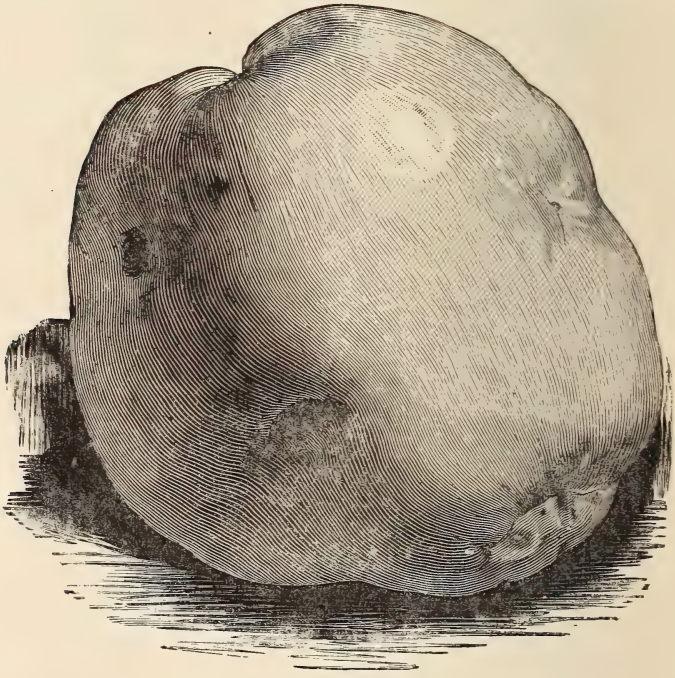
yellow colour; skin usually wrinkled; eyes not very deeply sunk; flesh yellow. Diameter generally ranging between 2 and $2\frac{1}{5}$ in. Stems erect, vigorous growing, 2 ft. to $2\frac{1}{2}$ ft. high, quadrangular,

Scotch Champion Potato.

deeply winged, marked with brown above the joints, and generally

branching. Leaves rather distant from one another, large, composed of oval, stalked, large, flat leaflets, and of other leaflets which are small, sessile, and round. Flowers numerous, large, bluish lilac, in stout clusters, and produced in succession for a long time. This variety is very productive and floury, and keeps well. It does not ripen until September.

Scotch Champion Potato.—Tubers very numerous, rounded, sometimes flattened; skin pale yellow, as is also the flesh; eyes deeply sunk, but not very numerous; shoot violet-coloured.



Jeancé Potato.

Diameter seldom exceeding from $2\frac{1}{5}$ in. to $2\frac{2}{5}$ in. The tubers are often longer than broad. Stems very vigorous growing, very erect, 3 ft. or more high, quadrangular, winged, dotted with blackish brown, and slender. Leaves numerous, growing almost erect, of medium size, and having the veins spotted with violet colour; leaflets elongated, very long pointed, very much reticulated, and covered with small stiff hairs. Flowers deep violet, with white points, in rather numerous clusters, and produced in succession for a long time. Seed very rarely formed. This is an exceedingly vigorous-growing and productive variety. Some years ago a great

deal of noise was made about it in England, on account of its resisting the disease. It is not, however, perfectly exempt from it, but, like the Chardon Potato, it continues to grow when attacked by the fungus, and ripens its tubers late in autumn, when the disease has spent much of its force.

Jeancé Potato.—Tubers rounded, somewhat irregular, the eyes being very deeply sunk; skin of a slightly gray-yellow colour, and smooth or wrinkled, according to the kind of soil in which the plants are grown; flesh yellow; shoot pink. Diameter often $3\frac{2}{5}$ in. and sometimes more. Stems vigorous growing, from $2\frac{1}{2}$ in. to $3\frac{1}{4}$ ft. long, quadrangular, rather deeply winged, often drooping, and very much branched. Leaves medium-sized, with short oval-rounded or heart-shaped leaflets, which are almost flat in the lower leaves and curled and folded in those at the end of the stem. Flowers rather numerous, lilac-pink; fruit seldom. Leaves a pale gray-green. This Potato, which is best known in the vicinity of Paris by the name of *Pomme de Terre Vosgienne*, is one of the most productive and best kinds. It is very floury and keeps well. If planted in April, the crop ripens in September.

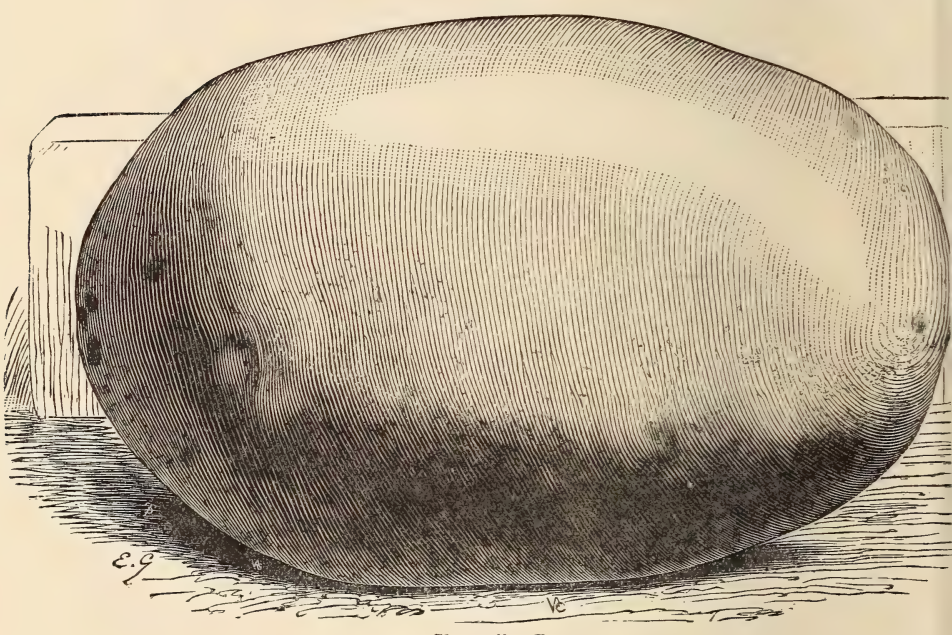
II. Oblong and Long Yellow Varieties

Snowflake Potato.—Tuber oval, always flattened, and remarkable for its symmetrical shape; skin pale yellow or grayish white, sometimes smooth, but usually wrinkled; flesh white, very floury, and light in texture; eyes very faintly marked; shoot pale pink. Stem rather erect, seldom exceeding 2 ft. in height, more round than quadrangular, swollen at the joints, and quite green. Leaves rather numerous and large, and of a very pale, light yellow-green; those at the base of the stem are much larger and flatter than those at the top. Flowers white, large, very often abortive. This is one of the best American varieties. It is a productive and rather early kind, and the flesh is of excellent quality. If planted in April, the tubers ripen about the middle of July.

Ohio Junior Potato.—Very large, oblong, flattened tubers very regular in shape, yellow, with eyes very little sunk; the flesh white; the shoot violet-coloured; the stems vigorous, very thick but short, and often branching, slightly winged, purple. Leaves large, of a shining dark green; leaflets oval, rounded, reticulated, almost glabrous; the flowers lilac with white points, not productive of seeds. It is above all a field variety, almost as productive as the Imperator and the Giant Blue Potato, but rather early. One of its chief merits is seldom to produce those small tubers which, being started late in the season, have not the time to attain a fair size and therefore go to waste.

Sutton's Seedling Kidney Potato.—Tubers large, oblong, flattened, smooth and yellow; the flesh pale yellow; the shoot violet. Stems medium-sized, spreading, angular, slightly purple; leaves of fair size, glossy dark green, with large leaflets, oval, mucronated, somewhat reticulated, slightly reflexed, the flowers always falling off. A very productive variety of excellent quality, ripening mid-season.

Chancellor Potato.—Tubers large, oblong, flattened, smooth, pale yellow; the flesh yellowish, shoot violet. Stems long, slender, spreading, slightly winged, violet. The first leaves are



Chancellor Potato.

large, shining green, reticulated, oval with short petioles; those produced later are smaller, more pointed and dull green. The flowers are abundant, purple with white points, falling off. A very fine variety, much grown for its great productiveness and perfect shape and excellent keeping quality of its tubers. Ripens half late.

Queen of the Polders Potato.—Tubers regular, long, flat, smooth, and slightly curved; eyes not prominent. The flesh is light, floury, and white; the shoot is pink and the stems short and slender; leaves of dull dark green, crimped; leaflets oblong, reticulated; flowers white. Neither early nor late, it does

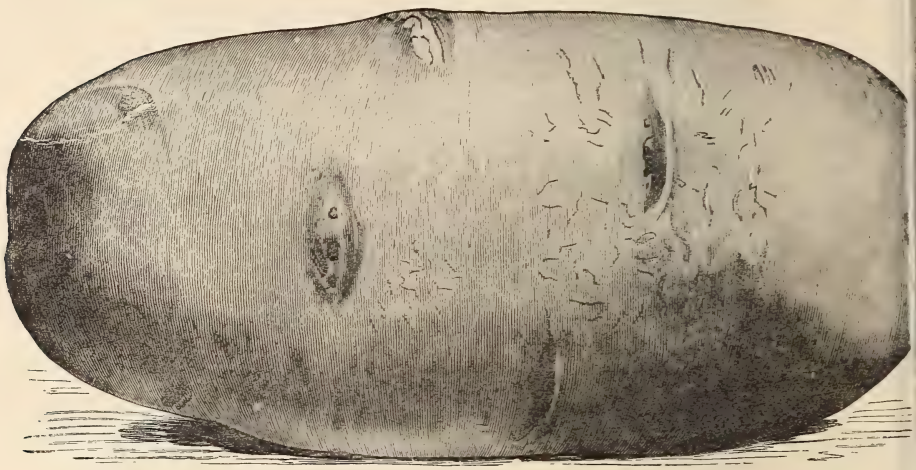
very well in the sandy soil of the reclaimed marshes near Mont Saint-Michel, from whence large quantities of it are exported into England, where it is much liked.

Queen of the Polders Potato.

White Horn Potato.—Tubers very numerous, light yellow, and thin, considering their length; their diameter scarcely exceeding the thickness of the thumb, while their length is often 3½ to 4½ in. The flesh and flavour are delicate. A vigorous half-late variety.

Magnum Bonum Potato. — Tuber large, oblong, slightly flattened, sometimes irregular in shape; skin pale yellow, smooth or wrinkled, according to the kind of soil in which the plants are grown; flesh yellow; eyes pretty well marked, and prominent rather than sunk; shoot pink. Stems very erect, vigorous growing, quadrangular, winged, tinged with coppery red above the joints, and growing from about 2½ to 3¼ ft. high. Leaves rather far apart, composed, especially those towards the base of the stem, of very broad, oval-rounded, not very numerous, almost flat, and broadly reticulated leaflets. The prevailing tint of the foliage is a pale or grayish green. Flowers lilac-red, most abortive. An extremely productive mid-season

variety, coming in about the middle of September. In England it has the reputation of resisting the disease very well, but in



Magnum Bonum Potato (natural size).

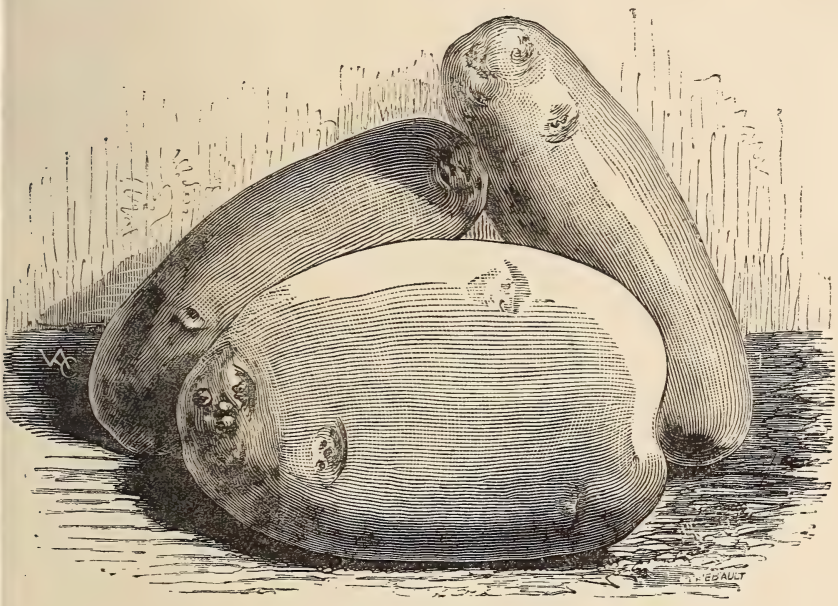
France it is not remarkable in this respect. Although at first green when other varieties are attacked, when it arrives at the period when the tubers commence to form, it takes the disease in its turn, and soon succumbs to it.

Lapstone Potato (English synonyms: Ash-top Fluke, Perfection Kidney, Pebble White, Rixton's Pippin, Yorkshire Hero).—

Lapstone, or Yorkshire Hero, Potato (natural size).

Tubers regularly almond-shaped, sometimes short, sometimes long, and very smooth; eyes hardly marked; skin pale yellow, slightly

gray, violet-coloured if exposed to the light for any long period; flesh pale yellow, very fine flavoured; shoot hairy, violet-coloured. Stems half-erect, from 20 in. to 2 ft. high, thick at the base, but quickly becoming thinner, quadrangular, slightly winged, and of a very faint copper colour near the joints. Leaves broad, light green, almost flat, slightly glazed, and having a peculiar appearance which is easily recognised. Flowers numerous, large, pure white, seldom producing seed. A very handsome variety, with flesh of fine flavour, light texture, and excellent quality. If planted in April, new potatoes may be dug about the end of July.



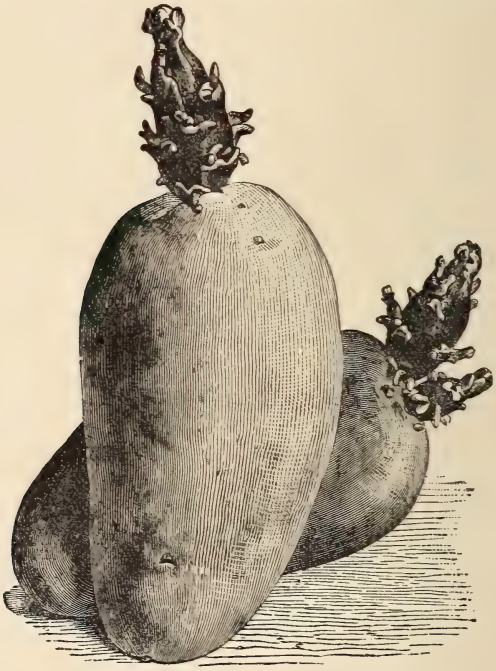
Early Victor Potato.

Victor Potato.—Tubers flat, oblong, often squared at both ends, smooth; the eyes faintly marked. Flesh quite yellow; shoot purple. Stems short, vigorous, with large round leaves. The flowers very scarce, large, and light purple. Of even quicker growth than the Marjolin Potato. The short stems make it suitable for cultivation under glass, in which case the tubers are formed within forty days. In the open ground it is early, and two successive crops may be grown in the same season.

Bed's Hero Potato.—Tubers yellow, large, oblong, smooth, almost eyeless, flesh yellow; shoot white or tinged with pink. Stems thin, very erect; leaves abundant, light green; leaflets small, oval-pointed, erect, and but slightly reticulated; flowers

white, abundant, and falling off. A vigorous but rather dwarf plant, of like earliness to the Yorkshire Hybrid, having the same qualities, with rather larger tubers.

Marjolin Potato (English synonyms: Walnut-leaved Kidney, Sandringham Early Kidney).—Tubers long, often slightly curved, thicker and rounder at one end, narrowed to a blunt point at the other, often marked with swellings about the eyes; skin yellow, smooth; flesh very yellow; shoot, when grown in darkness, yellowish white, and violet and green when grown in the light. The tubers grow close together around the bottom of the stem.

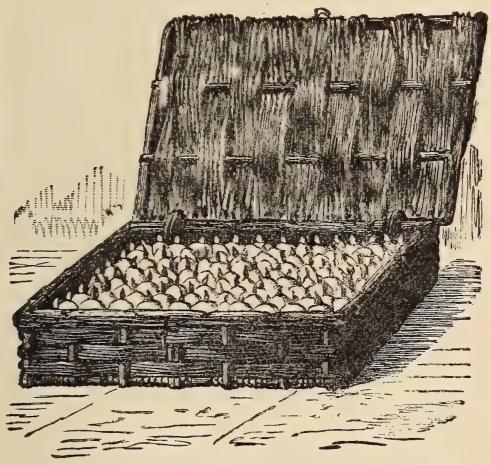


Walnut-leaved Kidney Potato (sprouting tubers, natural size).

Stems short, seldom exceeding 16 to 20 in. in length, usually drooping, not branched, and slightly winged. Leaves medium-sized, with rounded leaflets, dark green on the upper surface, much glazed, and almost always spoon-shaped. Flowers white, rather large, usually abortive, when the variety is very pure. This is the best known and most extensively grown early Potato, and forms tubers more quickly than any other kind. If planted in the open ground in April, the tubers ripen in June. It is the most suitable kind for growing in frames for

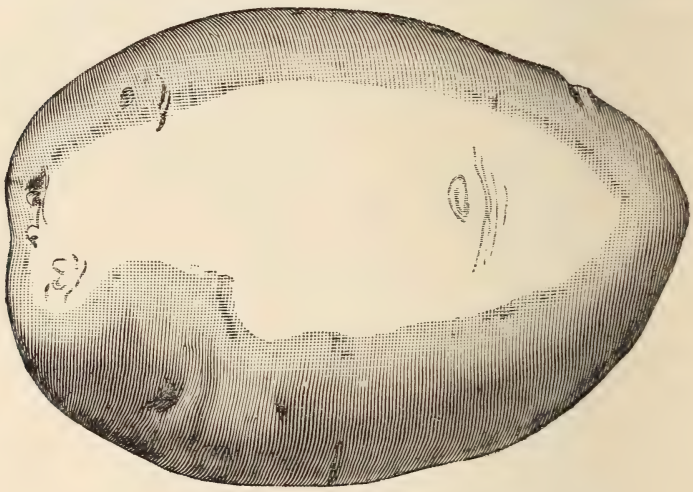
an early crop, and is the variety which is most used for that purpose. There is a form of it which has taller stems, leaves slightly reticulated, and numerous white flowers, and which resembles the Royal Ash-leaf Kidney. This, although not so early, is far more productive than the ordinary variety. It is grown in the open air. About Paris, the practice of sprouting "seed" potatoes before planting them is very common. For this purpose, the tubers are ranged on wicker-work screens (care being taken to place them with an eye uppermost), and kept in a dry place sheltered from frost until they are planted. When planting-time arrives, the screens are carried to the ground, and the tubers are taken from them one by one and carefully deposited each in the hole made to receive it. When the tubers are prepared in this way, the crop comes in from ten to fifteen days earlier than it would if they had been planted without being sprouted. Besides, the practice of sprouting is an almost certain preventive of a mishap which occurs more frequently with this variety than with any other—that is, the complete abortion of the overground stems. When this happens, no stems make their appearance above the surface of the ground, the tuber producing only a few underground stems bearing diminutive tubers which all together weigh less than the "seed" potato from which they have grown.

Marjolin Potato.



Walnut-leaved Kidney Potatoes sprouted in basket.

Tétard Marjolin Potato.—Tubers large, flattened, oblong or almond-shaped; skin smooth or faintly wrinkled, of a dark, coppery yellow, assuming a peculiar and easily recognised tint after the tubers have been taken up out of the ground; flesh yellow, very fine and delicate in flavour; shoot yellowish white. The tubers are sometimes swollen around the eyes, like those of the last-named variety. Stems erect, quadrangular, slightly winged, very rarely branching, quite green, and from 20 in. to 2½ ft. high. Leaves rather curled and wavy, of a green, slightly yellow, colour, and glistening. Flowers white, rather numerous, but hardly ever seeding. A very productive and early variety, and exceptionally



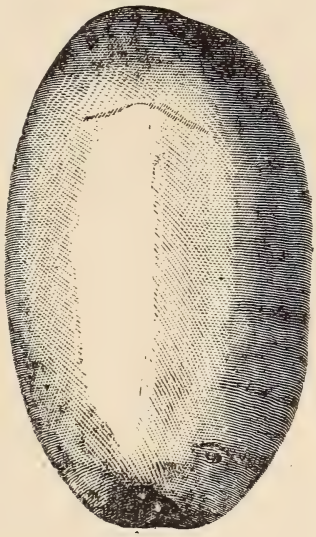
Tétard Marjolin Potato (natural size).

good for cooking. If planted in April, new potatoes may be dug in the latter part of July.

Royal Ash-leaved Kidney Potato (Synonyms: Early Alma Kidney, Carter's Early Racehorse, Harry Kidney, Royal Ash-top, Myatt's Ash-leaved Kidney, Veitch's Ash-leaved Kidney, or Rivers' Ash-leaved Kidney).—Tuber long, very smooth, kidney-shaped, or like a Gherkin, almost resembling the Early Marjolin Potato; skin yellow; eyes faintly marked; flesh yellow; shoot violet. Stems usually drooping, from 20 in. to 2 ft. long, rather slender, quadrangular, deeply tinged with a violet-brown colour, especially near the angles. Leaves dark green; lower ones broad, almost flat, moderately reticulated; upper ones much more twisted and puckered, and with the leaflets more pointed. Flowers large, lilac-blue, very seldom blooming. An excellent kind for an early crop, more suitable for the open ground than for growing in frames.

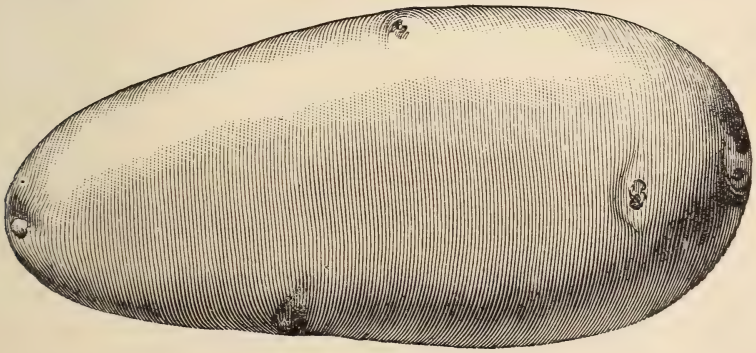
It is almost as early as the Marjolin Potato, but its tubers do not grow so close together around the base of the stem, and the foliage is more abundant. The flesh is very fine and of excellent quality.

Royal Ash-leaved Kidney Potato.



Tuber (natural size).

Belle of Fontenay Potato.—Tubers yellow, oblong or kidney-shaped, abundant, medium-sized, smooth. The flesh is very yellow, the shoot violet. In growth this variety resembles the Royal

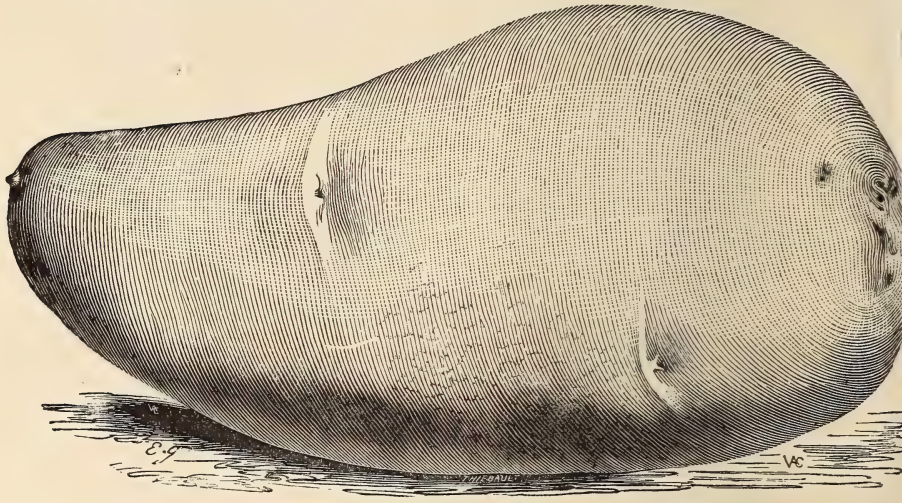


Belle of Fontenay Potato.

Ash-leaved Potato, but the stems are shorter, and the leaves, which are dark green, much twisted. The flowers are lilac-coloured and seldom bear seed. A very early, productive variety, of good quality and keeping well; suitable also for growing under glass.

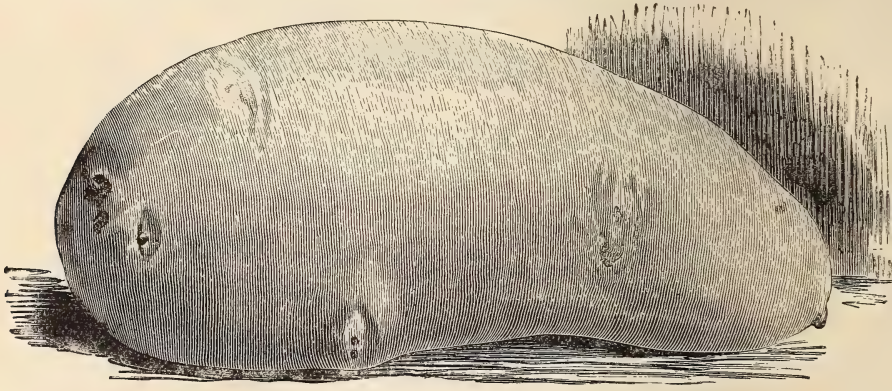
Belle of July Potato.—Tubers thick, almond-shaped, sometimes curved like a kidney. The skin is yellow, smooth; the flesh yellow;

the shoot purple. The stems are rather thin, firm, erect; foliage light. It is not liable to disease. The flowers are not abundant, and of a gray-lilac, and do not usually produce seed. An excellent Potato for



Belle of July Potato.

the French market, on account of its shape, earliness, and especially the colour of its flesh. Comes into use at the same time as the Yorkshire Hybrid Potato, to which it is superior. The tubers are numerous and almost uniform in size, so there is no waste in lifting.

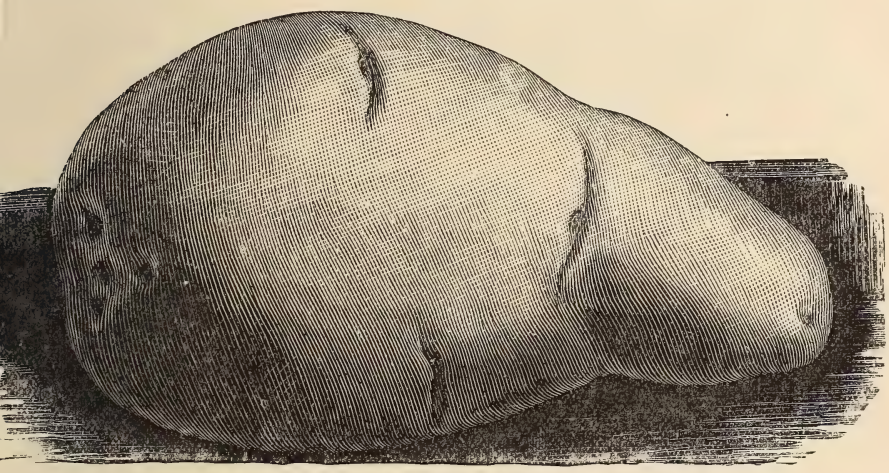


Nettle-leaved (Early Bedfont) Kidney Potato.

Nettle-leaved Potato (English synonyms: Early Bedfont Kidney, or Sutton's Early Racehorse, Potato).—Tubers very like those of the Early Marjolin Potato, but distinguished from them,

as soon as they commence to sprout, by the pink colour of the shoots, which are also hairy and covered with leaves; flesh yellow. Stems slender, generally unbranched and spreading along the ground, from 20 in. to 2 ft. long, and slightly winged. Leaves rather far apart, short, composed of a few oval-rounded, very much reticulated dark green leaflets. Flowers white, opening early, in not very numerous clusters, and sometimes producing seed. A very good variety for an early crop, coming in almost as soon as the Early Marjolin and quite as productive, but it keeps badly. It is very extensively grown for an early crop in the open fields in the vicinity of Paris.

Prince of Wales Potato.—Tubers generally smooth, but sometimes knobby; almond or pear-shaped; flesh yellow, fine grained, floury and light. Stems pretty vigorous, brown, mostly lying on

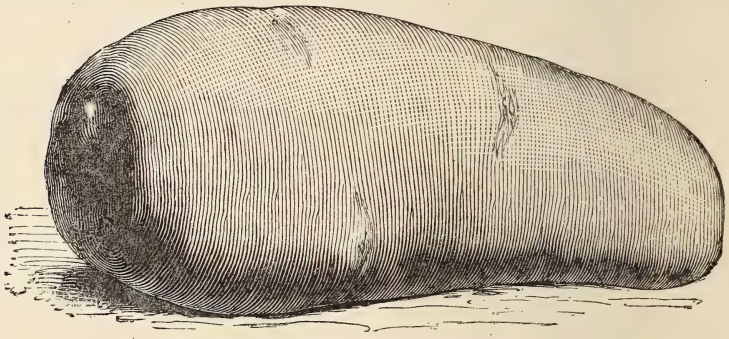


Prince of Wales Potato.

the soil. The foliage is reticulated, resembling that of the Royal Ash-leaved Potato. The flowers are lilac-blue, and very seldom seed. It is an excellent, very productive Potato, and of easy sale. It is especially apt for producing fresh tubers in August and September, but, like the Royal Ash-leaved, does not keep very well.

Yorkshire Hybrid Potato (*Quarantaine de la Halle or Hollande*).—Tubers medium-sized, seldom more than from $3\frac{1}{3}$ to 4 in. long by 2 in. in diameter, oblong or almond-shaped; skin yellow, usually smooth; eyes hardly visible; flesh very yellow and of excellent quality; shoot pink, slightly hairy, and slow in growth. Stems half-erect, quadrangular, winged, sometimes branching, and from 2 to over $2\frac{1}{2}$ ft. long. Leaves large and broad, composed of a great number of leaflets of very variable dimensions: in the lower leaves they are broad, flat, and almost glazed; in the upper ones

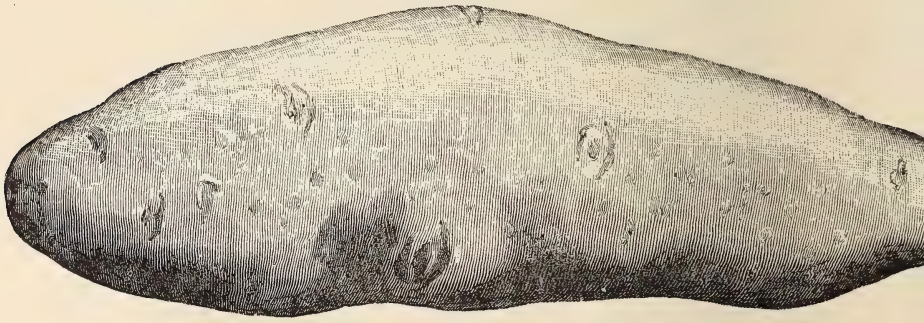
they are narrower, reticulated, and curled. Flowers numerous, violet-pink, a pretty large proportion of them producing seed. This variety, in fact, is one of those which yield the most seed. In the Paris market it ranks amongst the most highly esteemed kinds, and has completely superseded the old Long Yellow Dutch Potato.



Yorkshire Hybrid Potato (natural size).

It is productive, of excellent quality, keeps very well, but, unfortunately, is very liable to be attacked by the disease. If planted in April, new potatoes may be dug in the course of August.

The *Brie Long Yellow Potato* is a sub-variety of this kind, from which it does not differ essentially. Its tubers are generally a little longer and yellower, and ripen somewhat later, but that is chiefly owing to the circumstance that they are grown in richer, deeper, and colder soils than those in which the Yorkshire Hybrid



Princesse Potato (natural size).

is usually planted. The characteristic features of both forms—that is, the colour and arrangement of the flowers, and especially the appearance and growing period of the shoots—are, in fact, identical.

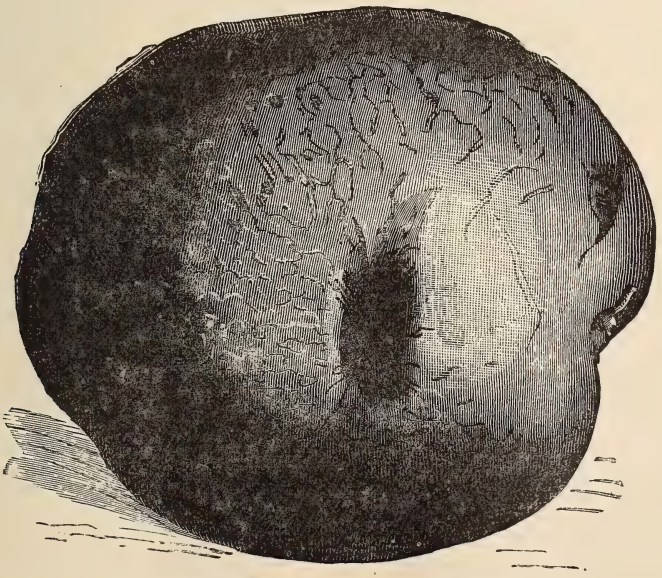
Princesse Potato.—Tuber very long, almost as deep as broad, usually curved, and thicker at the top than at the bottom ; skin

bright yellow, smooth; eyes prominent rather than sunk; flesh very yellow; shoot smooth, copper-coloured. Stems half-erect, 20 in. to 2 ft. long, quite green, thick, quadrangular, and winged. Leaves long and abundant, composed of numerous leaflets, large and small, of a pale green, slightly yellow, colour. Flowers very large, lilac-red, not numerous, and seldom seeding. This variety is particularly suitable for frying and for salads; the flesh is very firm and compact. The tubers ripen middling early. If planted in April, new potatoes may be dug about the end of August.

Joseph Rigault Potato.—Tubers smooth, almond-shaped, skin and flesh quite yellow; the eyes very faintly marked; the shoot copper-coloured. The stems are thin and weak, generally lying on the ground; the foliage is light, pale green, and glazed. The flowers are few and purple-red. A half-early variety, well shaped and clean, with a fairly tough skin and of pleasant flavour. It has all the qualities valued in a table Potato, and is altogether a garden Potato, not being productive enough for market-gardening or agricultural purposes.

III. Round Red Varieties

Red-skinned Flour-ball Potato (Synonyms: Garnet Chili, or Brinkworth Challenger).—Tubers large, deeply marked with hollows from the eyes being very much sunk, often 4 in. or more



Red-skinned Flour-ball Potato (natural size).

in diameter; skin usually wrinkled, pale red; flesh white; shoot white, with the point and base red. Stems erect, quadrangular, winged, of a coppery red, from about 2½ to over 3 ft. high, sometimes branched. Leaves medium-sized, composed almost solely of large oval-acuminate leaflets, which are nearly always folded gutter shape, and of a rather light, yellow-green colour. The main leaf-stalk is rather deeply tinged with brown, especially towards the extremity. Flowers very abundant, of a slightly lilac-rose colour, in numerous clusters, and produced in succession for a long time; they very seldom bear seed. This is one of the good

American Wonder Potato (natural size).

varieties for field culture, and, although its introduction only dates back about twenty years, it has already taken an important place among the varieties which are grown both for the manufacture of starch and for table use. It uniformly yields pretty well, as it suffers little from the disease, and is not too late in ripening, the crop being usually dug in September in the vicinity of Paris. For table use, the flesh is considered to have the defect of being too white and somewhat deficient in fineness of flavour.

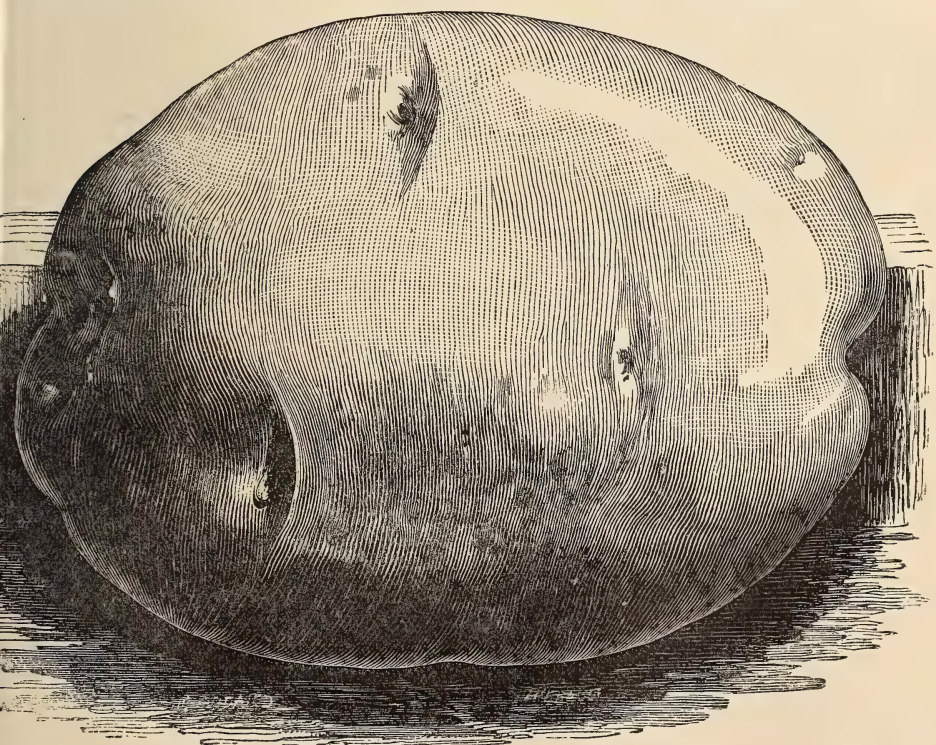
American Wonder Potato. — Tubers rounded, somewhat irregular; eyes deeply sunk; skin rather smooth, violet-red; flesh white; shoot red. Stems erect, quadrangular, vigorous growing.

Leaves broad, with dark green leaflets. Flowers numerous, in large strong clusters, of a rather vivid violet-red colour. A half-late and very productive variety, but of only ordinary quality.

Village Blacksmith Potato (*Pomme de Terre Truffe*).—Tubers roundish, medium-sized, regular, eyes not much sunk; remarkable for the peculiar appearance of the skin, which is thick, blackish, and split like the skin of a truffle. Shoot violet-coloured; flesh white, light, very floury when cooked; stems medium-sized, erect; foliage gray, reticulated; flowers lilac, opening seldom. The Blacksmith Potato is half-early, fairly productive, and of very good quality. It is sure to be appreciated in countries where preference is given to white-fleshed Potatoes.

IV. Red or Pink Oblong or Long Varieties

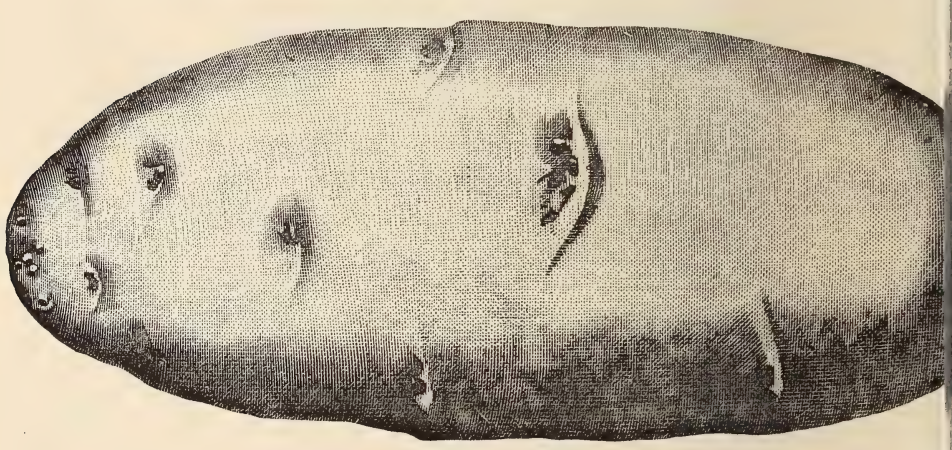
Institut de Beauvais Potato.—Tubers large, flattened, heart-shaped; the skin yellow rather salmon-coloured, or tinged rose near the eyes, which are marked by a superficial rumple. The flesh is



Institut de Beauvais Potato.

very pale, almost white; the shoot pink. The stems very vigorous, quadrangular, thick, erect, with large, smooth, light green leaves. The flowers are white, numerous, and produced in bunches. It is half-early and fairly productive. It was raised from seed at the Institute of Beauvais, Oise, and resembles so very closely the Idaho Potato that one might suppose it had been raised from seed of the Idaho.

White Elephant Potato.—Tubers very large and usually very long, flattened, and slightly notched ; in colour pale yellow, more or less striped with pink, especially at the end. The flesh is white and the stems very vigorous, tall, with broad vivid green leaves. The flowers are white. A handsome late potato with remarkably large tubers, specially good for feeding cattle, etc.

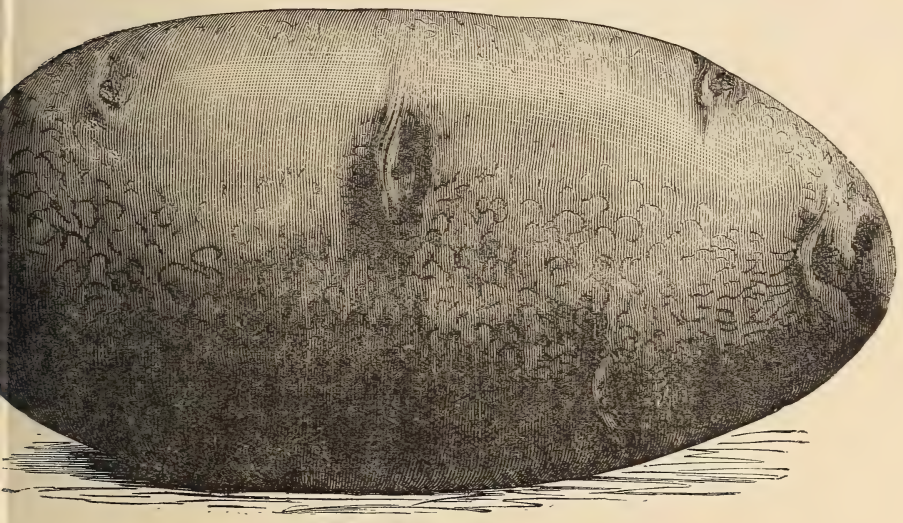


Early Rose Potato.

Early Rose Potato.—Tubers oblong, rather flattened, often more pointed at the top than at the bottom ; eyes not very deeply sunk, but having a rather prominent ridge or wrinkle below them ; skin smooth, and of a pink colour slightly tinged with salmon colour ; flesh white ; shoot pink, and germinating remarkably soon. Stems medium-sized, erect, from 2 to 2½ ft. high, rather thick at the base, but speedily becoming more slender, sometimes branching, and slightly tinged with coppery red, especially near the joints. Leaves flat and smooth, composed almost solely of large oval-acuminate leaflets, of uniform size, slightly glistening, and of a light green colour. Flowers white, large, in not very numerous clusters, and usually falling off abortive. A very productive and early kind, the crop ripening in the month of August. Flesh light in texture, and extremely variable in quality, according to the kind of soil in which the tubers are planted. These do not keep well, as they have too great a tendency to sprout.

Variegated-leaved Potato.—We have placed this variety next to the Early Rose because the two resemble each other closely, only differing in the golden-yellow striped foliage of this variety. The tubers are the same shape and colour as those of the Early Rose Potato, but less numerous and often smaller.

Cottager's Red Potato (*Saucisse*).—Tubers flattened, oblong, usually very regular in shape, from about $3\frac{1}{4}$ to 4 in. long, and about 2 in. in diameter; skin smooth, rather vivid red; eyes faintly marked, not sunk; flesh yellow; shoot pink. Stems tall, erect, very vigorous, almost always branching, often 3 ft. or more in height, quadrangular, slightly winged, and deeply tinged with brown red. Leaves large, composed of very unequal, oval-round, much reticu-

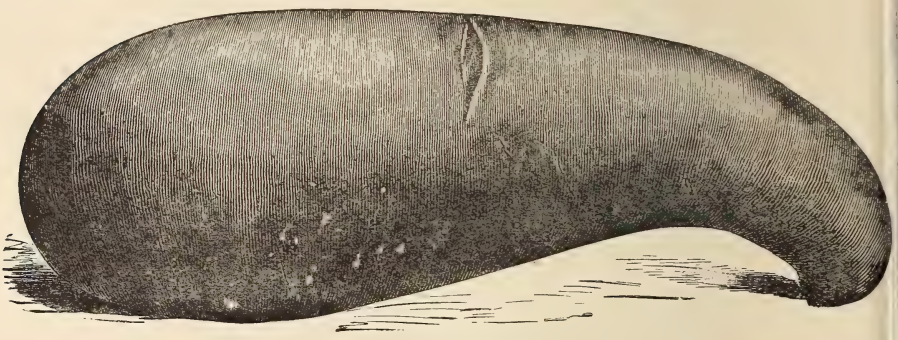


Cottager's Red Potato (natural size).

lated leaflets of a dark, slightly gray and dull, green. Flowers pale violet, in very numerous clusters usually intermingled with the leaves, very rarely producing seed. One of the best kinds for winter use, and most in request in Paris late in autumn. The flesh is somewhat compact, but much more floury as the season advances. This variety is rather free from the Potato-disease properly so called, but it often suffers from the affection know in France as "la Frisolée," which shrivels up both leaves and stems at the commencement of their growth.

Robertson's Giant Kidney Potato (*Rouge longue de Hollande*).—Tubers very easily recognised, flattened kidney or almond shaped, usually very long, with the base very narrow, and often curved into a crook; skin smooth, of a rather dark red slightly tinged with

violet; flesh yellow, fine in texture, and of good quality; shoot red. Stems erect, stiff, more round than quadrangular, coppery red, and from 2 to 2½ ft. high. Leaves rather scanty, and pale gray-green. In the lower leaves the leaflets are often joined together so as to form one broad rounded leaf-blade; the leaves at the top of the stem are often curled and wavy, with pointed leaflets puckered at the edges. Flowers, white, numerous, in rather strong clusters, and hardly ever producing seed. The haulms or stalks of this variety are remarkably slight and slender, and do not cover the ground beneath them. This is a very distinct potato; it was formerly a great favourite, but, at the present day it has been superseded by more productive kinds, although of superior quality and an excellent keeper. If planted in April, new potatoes may be dug about the end of August. In the neighbourhood of Cherbourg, where it is very



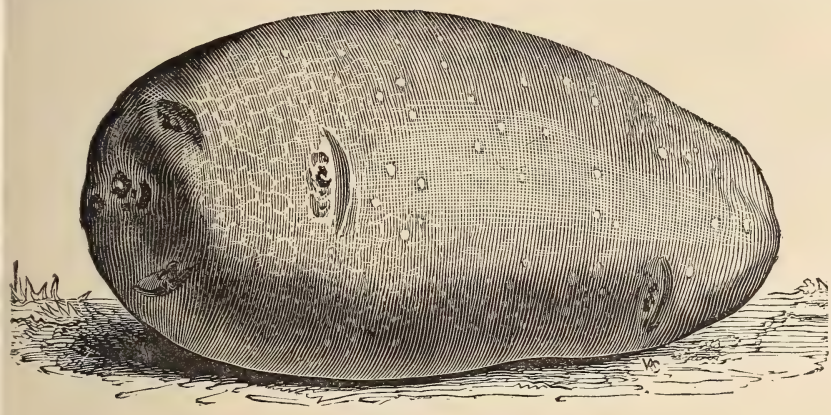
Robertson's Giant Kidney Potato (natural size).

extensively grown, the mildness of the climate permits of its being planted in December, the crop coming in in June or July.

Cardinal Potato.—Tubers medium-sized, oblong or almond-shaped, very red; flesh pale yellow, sometimes slightly streaked with pink, firm and floury; the shoot red. The stems are short, thin, spreading, slightly violet, scarcely winged; the leaves few, small, light green; leaflets of unequal sizes, oblong, rounded, not much reticulated. The flowers are white, and fall off before they open. A very productive variety, of excellent quality, the tubers are regular in shape and keep well. A mid-season variety and a healthy vigorous plant.

Pousse-debout Potato.—Tubers almost cylindrical, narrowed at the ends, from about 3¼ to 4 in. long, and between 1 and 2 in. in diameter; skin pale red, rather smooth, eyes faintly marked and prominent; flesh yellow; shoot pink. Stems vigorous growing, erect, branching, generally short, seldom exceeding from 20 in. to 2 ft. in height, and tinged with coppery red, as are also the leaf-

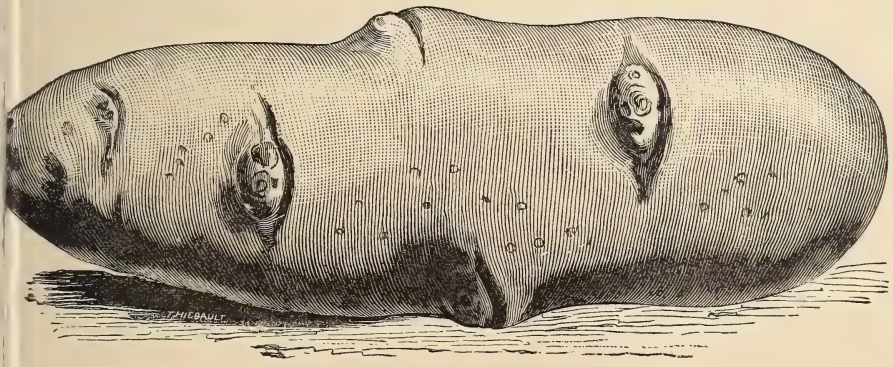
stalks. Leaves broad and large, dark green, composed of broad, rounded, pointed leaflets. Flowers white, large, in rather numerous and compact clusters; they usually produce no seed. This is a



Cardinal Potato.

productive variety and keeps well. The flesh is more compact than that of the preceding kind, and not so floury. The tubers ripen in September.

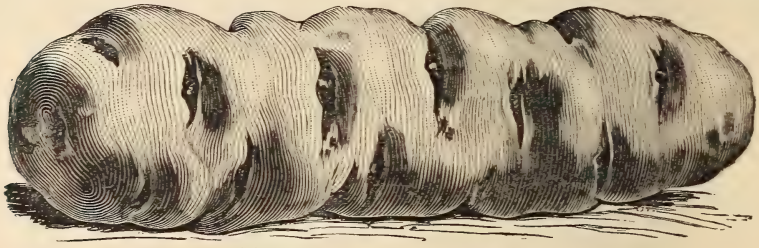
Vitelotte Potato.—Tubers almost cylindrical, somewhat thicker towards the top than at the bottom; eyes numerous, each situated at the bottom of a deep wrinkle; skin red, rather smooth; flesh white, sometimes slightly zoned with red, especially at the end farthest from the point of attachment to the underground stem;



Pousse-debout Potato (natural size).

shoot red. Stems erect, very stiff, vigorous, quadrangular and winged, tinged with brown, often branching, seldom more than from 20 in. to 2 ft. high, very thick-set and well furnished with

leaves. Leaves short, of a slightly gray-green colour ; leaflets oval, rounded, rather pointed, especially those towards the top of the stem, very much reticulated, and often folded in two. Flowers white, very seldom seeding. This variety is not so highly esteemed

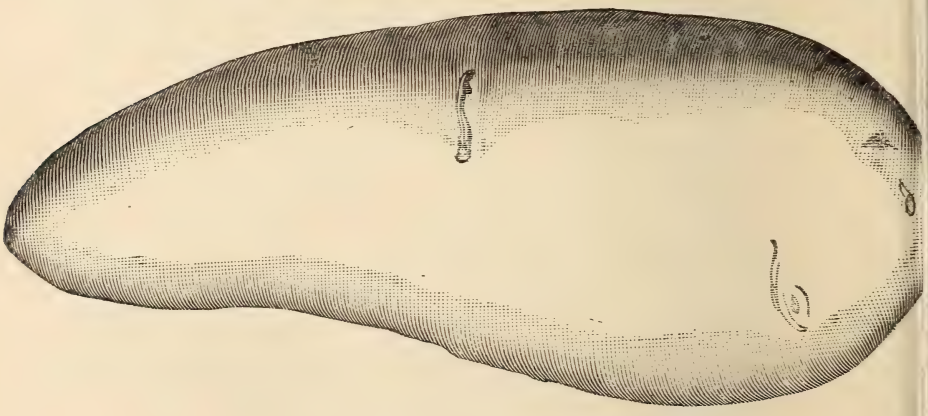


Vitelotte Potato (natural size).

nowadays as it was formerly ; nevertheless it is of excellent quality, rather productive, and keeps very well. It has the defect of being difficult to peel, and much of the tuber is wasted in that operation. The crop comes in in the course of September. The best variety for salad.

V. Violet-coloured Varieties

Violet-coloured Quarantaine Potato. — Tubers flattened, smooth, kidney-shaped or almond-shaped, often from 4 to 6 in. long, and 2 in. or more in diameter at the thick end ; skin ex-

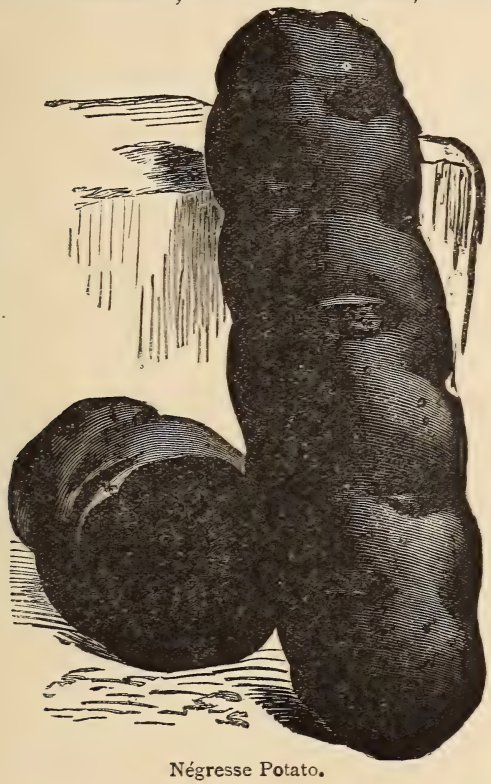


Violet-coloured Quarantaine Potato (natural size).

ceedingly fine and thin, violet, smooth ; flesh yellow ; shoot violet. Stems rather slender, brown, usually drooping, and seldom exceeding from 2 to 2½ ft. in length. Leaves medium-sized or small, with rounded, gray, very much reticulated leaflets. Flowers white,

seldom showing, and never seeding. This is a mid-early variety, not very productive, but of very good quality. It keeps well and without sprouting, and is, perhaps, the best of all varieties for table use in spring, becoming more floury and improving in quality as the season advances.

Négresse Potato.—Tubers long, cylindrical; eyes deeply set like those of the Vitelotte; skin almost black, also flesh. Stems



Négresse Potato.

weak, purple; foliage curled and reticulated; flowers white. A variety not productive, but curious for the colour of its flesh.

Vicar of Laleham Potato.—Tubers very large, regular spherical in shape, or slightly flattened, smooth, with eyes faintly marked. The skin is purple, sometimes rather rough; the flesh is white, floury and light. The stems strong, but not long compared with the great productiveness of the plant and the size of the tubers. The flowers are white, scarce, and usually sterile. A fine half-early, very productive Potato, succeeding best in light rich soils; the tubers not very numerous, but large and keeping quite well.

VI. Variegated Varieties

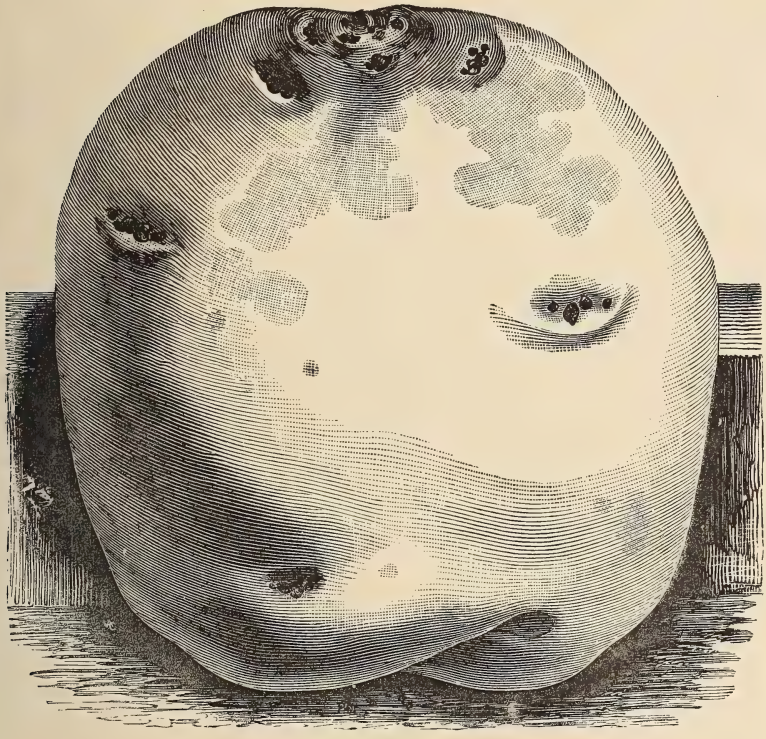
Czarina Potato.—Tubers large, rounded or oblong, notched with a more or less deep red blotch around the eyes. Flesh very

Czarina Potato.

pale yellow, shoot pink. Stems trailing, strong, leaves abundant, with large leaflets ; flowers violet with white points, produced in bunches. It is much grown for cattle-feeding and industrial

purposes, being very productive, rich in starch, and keeping well It is besides of sufficiently good quality for the table.

La Bretonne Potato.—Tubers rounded or oblong, flattened on one side. The skin rosy white, slightly red near the eyes. The flesh is white and of good quality; the stems tall and stout,

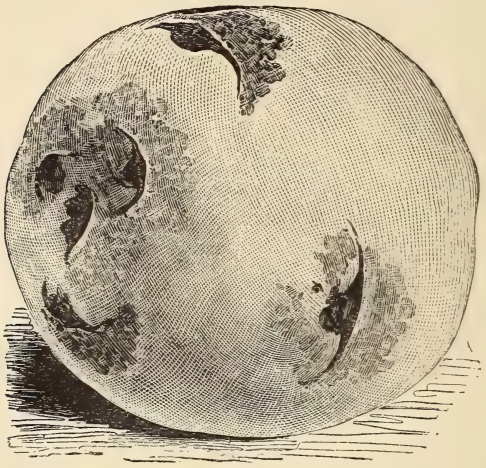


La Bretonne Potato.

with vigorous branches; the foliage light gray-green in colour, and the flowers white. This Potato, though not a cattle-feeding one, is remarkable for the abundance of its yield. Its flesh is floury, and it is one of the best among table Potatoes.

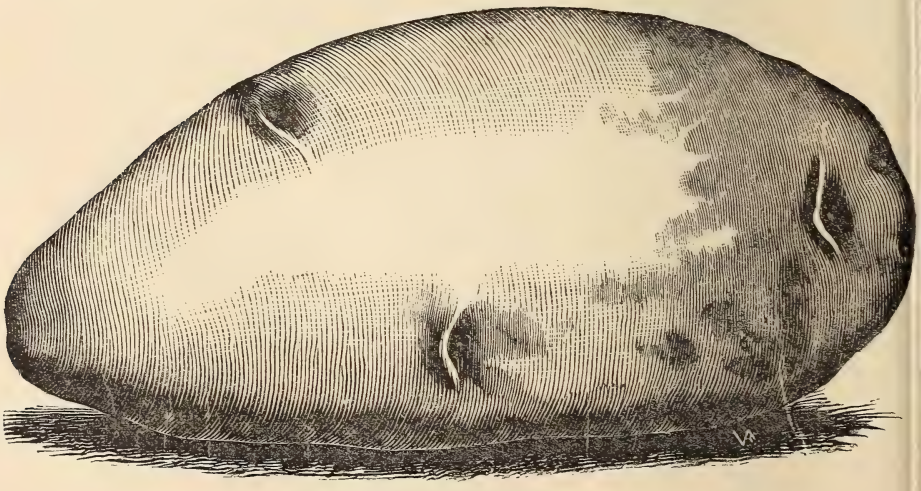
Peake's First Early Potato (*Blanchard*).—Tubers round, sometimes flattened, yellow, plentifully variegated with violet, especially towards the top and around the eyes; skin smooth; flesh yellow; shoot violet-coloured. Stems stout, usually prostrate, almost always branching, from about 2½ to over 3 ft. long, tinged with brown, especially towards the base. Leaves medium-sized, composed of oval-acuminate, rather reticulated leaflets, light green.

Flowers very numerous, large, lilac-blue, a large proportion of them seeding. This Potato seeds, perhaps, more abundantly than any other of the ordinary kinds. It is a good, early, productive variety, and keeps well. The flesh is floury and very yellow. The crop may be dug about the end of July. The tubers are never very large, but they are very plentiful, and of fairly uniform size.



Peake's First Early Potato (natural size).

Incomparable Potato.—Tubers oval or almond-shaped, smooth, with eyes almost level; the skin is yellow, and usually blotched with purple-red; the flesh is yellow, the shoot violet. The stems are thick and angular, trailing, and sometimes striped purple; the leaves are small, curled; the leaflets oval-pointed, hairy and folded over. The flowers are flax gray and often fertile. A handsome Potato, with regularly shaped tubers. Exclusively a cooking potato, half-early, but not productive.



Incomparable Potato.

In addition to those already described, some of the best known or most noteworthy English and other varieties are :—

I. French Varieties

Achille Lémon.—Tubers slender and elongated, usually curved, and much narrower at one end than at the other ; skin very smooth, golden-yellow, marked with broad dark violet spots, especially at the end of the tuber and near the eyes, which are very slightly sunk ; flesh deep yellow, rather firm, and very fine. A half-early, moderately productive variety.

Artichaut Jaune.—Tubers long, slender, almost cylindrical, very much notched, and like those of the Vitelotte Potato, only that they are yellow instead of red. A floury, half-late variety, now almost gone out of cultivation.

Aspasie.—A vigorous-growing late variety. Tubers regular, oblong, large, flattened ; skin coppery pink ; flesh white, very rich in starch.

Belle Augustine.—Tubers pale yellow, oblong, flattened, usually somewhat kidney-shaped ; skin smooth ; eyes faintly marked ; flesh yellow ; shoot violet-coloured. A rather dwarf, early, and productive kind, coming in eight or ten days earlier than the Yorkshire Hybrid Potato. It is grown to some extent in the vicinity of Paris for the supply of new potatoes.

Belle de Vincennes.—Tubers oblong, flattened, smooth, almost without eyes, remarkably handsome, and resembling the Snowflake Potato in appearance ; shoot violet-coloured. Stems stout, tinged with brown, usually twisted ; leaves broad, numerous, and dark green ; flowers violet, in rather crowded clusters. This variety seeds abundantly.

Bonne Wilhelmine.—Tuber small, round, bright yellow, smooth; eyes but little marked ; flesh very yellow ; shoot purple.

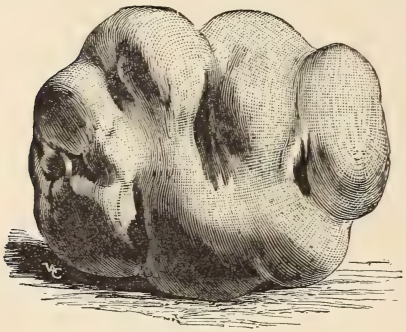
Brandale.—Tubers yellow, long, almond-shaped ; flesh butter-yellow ; shoot violet. Stems short, spreading, brown or violet ; leaves small, with small dark green leaflets, much reticulated ; flowers white. An early variety much grown in Southern France.

Caillaud.—Tubers round, medium-sized or large, yellow, slightly tinted with salmon colour ; shoot pink ; skin usually wrinkled ; flowers white. A stout-growing, productive, half-late variety, very good for field culture, and resembling the Jeancé Potato except in the flowers, but not so productive as that variety.

Chandernagor.—Productive half-late variety. Tubers slightly elongated, somewhat notched, black purple ; flesh strongly tinged with violet, but very fine and of excellent quality ; shoot violet.

Chardon.—Tuber very large, round, sometimes long; eyes much sunk; skin smooth, pale yellow; flesh pale yellow; shoot pink.

Comice d'Amiens.—A very handsome, small, early kind, with round, small, or medium-sized tubers, of a yellow colour variegated with pink; shoot pink. Flowers white. A very early, but not very productive variety, which might be suitable for forcing.



Chardon Potato.

Des Cordillières.—Tubers yellow, round, very smooth, small, and very numerous; flesh yellow; shoot violet-coloured. The plant is of tufty growth, with numerous stems. Foliage scanty. A very distinct kind, but of no great account for kitchen-garden culture.

Descroizilles.—Tubers rounded or slightly oblong, somewhat irregular in shape; eyes rather deeply sunk; skin pink or very pale red, slightly wrinkled; flesh yellow; flowers white. A late variety, rather deficient in productiveness, but of good quality.

Excellente Naine.—A very handsome and good variety, resembling the earliest forms of the *Pomme de Terre Royale.* The stems are hardly longer than those of the Marjolin Potato, for which this variety might be substituted in frame culture, being quite as productive and quite as early.

Grosse Jaune Deuxième Hâtive.—This Potato is rather extensively grown in the fields in the vicinity of Paris. It is, properly speaking, only a sub-variety of the Shaw, or Regent, Potato, with somewhat larger tubers, and ripening from eight to ten days later.

Hâtive de Bourbon-Lancy.—Tubers medium-sized, quite round or very slightly flattened, variegated with yellow and violet colour disposed in bands rather than in round marblings. A moderately vigorous early-ripening variety, with lilac flowers, which are generally abortive.

Jaune Longue de Hollande.—Formerly the most extensively grown and the most highly esteemed Potato for table use; since the appearance of the Potato-disease it has been almost entirely superseded by the *Quarantaine de Noisy* Potato and its sub-varieties. The following were its characteristics: Tubers long, almost always curved, and much thicker at one end than at the other; skin grayish yellow, slightly wrinkled; flesh yellow, very floury, and very fine in texture; shoot pink. Stems rather short, twisted;

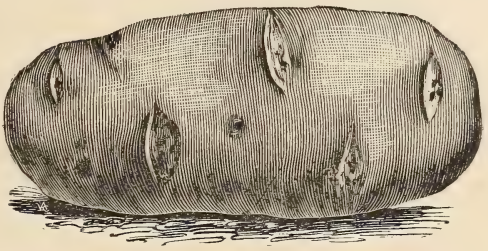
leaves curled and reticulated; flowers lilac-red. This is a rather late kind, and never very productive.

Jaune Ronde Hâtive de Provence (*Round Early Provence*).—Tubers large, round, light yellow, regular in shape, slightly notched; flesh very light yellow; shoot violet. Stem thick, vigorous, angular, spreading; leaves very large, with slightly reticulated leaflets; flowers white. An early and very productive Potato, well suited for export.

De Malte.—Tubers very large, round; eyes very deeply sunk, and rather like those of the Jeancé Potato; shoot pink. Stems usually trailing on the ground, green, and from about 2½ to over 3 ft. in length; leaves clear green, curled, and reticulated. The flowers are constantly abortive.

Marceau.—Remarkable for the great size of its tubers which are flattened, oblong; skin pale yellow, somewhat rough; flesh yellow; shoot violet.

M. Eiffel.—Early and very productive, in shape resembles the Cottager's Red Potato, but is rather longer and pale yellow; flesh white; shoot pink. Stems rather short; leaves large, smooth, spreading.



M. Eiffel Potato.

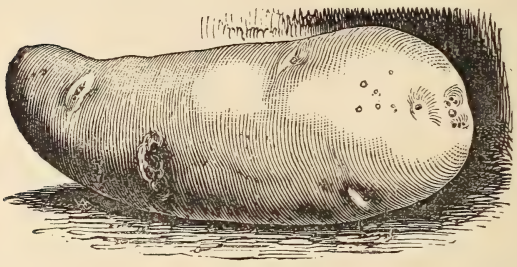
Naine Hâtive.—Tubers small or medium-sized, round; eyes faintly marked; skin yellow, rather smooth; shoot violet-coloured; flesh yellow. Flowers lilac. Stem short and weak, seldom exceeding from 16 to 20 in. in length. An early variety, but a very poor cropper.

Noisette Sainville.—A miniature Potato, with a very appropriate name, as the size of the tubers is only about that of a hazel-nut (*noisette*), very rarely exceeding that of a good-sized almond. They are ovoid and slightly flattened in shape, of a grayish yellow colour, and with a slightly wrinkled skin. The eyes are hardly visible; shoot violet-coloured. Stems very small and weak; leaves gray; flowers white. This variety has been recommended on account of the fine quality of the flesh of the tubers, but its produce is so trifling that it is hardly worth growing.

Oblongue de Malabry.—Tubers oval, pale yellow, not notched; flesh white; shoot white, faintly tinged with violet colour. A very productive and moderately early variety.

Pasteur.—Tubers oblong, very smooth, elongated; flesh yellow, fine and floury; shoot violet-coloured; ripens mid-season.

Patraque Blanche.—An exceedingly productive kind, with grayish white, slightly pink-tinted tubers, which are oblong in shape, squarish at both ends, and tolerably notched; flesh white; shoot pink. Stems very long and very vigorous growing; leaves gray; flowers pink, numerous. This variety produces a considerable number of tubers of medium size. It is a rather late kind, and is more grown for feeding cattle than for table use.



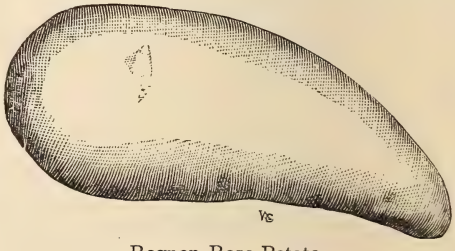
Pasteur Potato.

Quarantaine à Tête Rose.—Tubers oblong or almond-shaped; skin smooth, yellow, variegated with red near the eyes, especially at the end of the tuber; flesh yellow. Stems short, erect; leaves grayish. A half-late and rather productive variety. When grown in a light soil, the tubers of this variety have an extremely handsome and quite distinct appearance.

Reine Blanche.—A handsome, rather late variety. Tubers medium-sized, or large, very round, white, with a red spot around each of the eyes, which are rather deeply sunk; shoot pink. Stems erect, vigorous growing; leaves abundant, dark coloured; flowers reddish violet, in broad clusters. The tubers of this variety have a very handsome appearance, but are of only middling quality.

Reine de Mai.—Tubers oblong or almond-shaped, flattened, very smooth, and nearly white; shoot pink. Stem rather slender and bare of leaves; flowers white. This is an early variety, and very handsome when well grown, but it is exceedingly delicate, and the tubers are very often spotted.

Rickmaker.—A very productive, half-late Potato, with oblong, deeply notched, pale yellow tubers and pink shoot; stems long and trailing. Contains a great deal of starch.



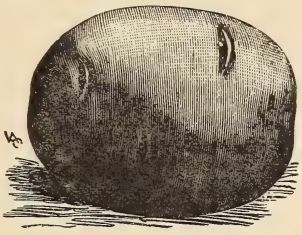
Rognon Rose Potato.

Rognon Rose (*Belgian Kidney Potato*). — Tubers flattened, usually almond or kidney-shaped, very smooth; skin light pink, yellowish; eyes faintly marked; flesh yellow; shoot pink. A productive variety, ripening mid-season, and keeping well.

Rohan.—Very closely allied to the Patraque Blanche Potato, from which it is only distinguished by its tubers being more reddish coloured. It is a productive kind, and well adapted for field culture.

Rosée de Conflans (*Rosace de Villiers-le-Bel*).—Tubers long, almost cylindrical, very slightly notched, usually pink-coloured towards the top and salmon-tinted yellow at the bottom; shoot pink. Stems rather short and stiff; leaves numerous, dark coloured; flowers white. A half-late and rather productive kind. The flesh of the tubers is yellow, firm, and not easily bruised.

Rosette.—A handsome variety, a seedling of the Early Rose. Tubers flattened, rounded, dark red, smooth; flesh white, light. A half-early variety.



Rosette Potato.

Rouge Ronde de Strasbourg (*Wéry*).—Tubers medium-sized; skin usually somewhat wrinkled and of a rather deep red colour; shoot red; flesh yellow. Stems very stiff and strong, brown; leaves dark green; flowers reddish lilac. A good common variety, productive, and coming in in mid-season.

Sainte-Hélène.—Tubers handsome, yellow, very smooth, oblong, flattened, and slightly kidney-shaped; eyes very faintly marked; flesh yellow. Stems rather short and pliant; leaves broad, dark green; flowers violet, not very numerous, but very large. Tubers ripen half-early. A fine kitchen-garden variety.

Saint-Germain.—A handsome red Potato, rounded, flattened; flesh yellow. Flowers small, pinkish.

Saucisse Blanche.—In shape this variety resembles the Cottager's Red Potato, but the tubers are white or pale yellow, with red blotches round the eyes and at both ends; flesh yellow; eyes faintly marked; shoot pink.

Tanguy.—This kind is rather extensively grown in Brittany. It comes very near the Segonzac or Saint-Jean Potato, but its tubers are of a paler yellow and rounder, its stems are thicker, and its leaves are of a paler green. When grown in the sandy or granitic soils of the coasts of Brittany, the tubers are very fine and floury. Large quantities of them are exported to England.

Tardive d'Irlande.—Tubers rounded or oblong, rather notched, and of a yellow colour variegated with red; flesh white; shoot pink. Stems scanty; leaves slightly gray; flowers lilac, small. A late variety and a poor cropper. Its chief merit is that the tubers will keep for a long time without sprouting.

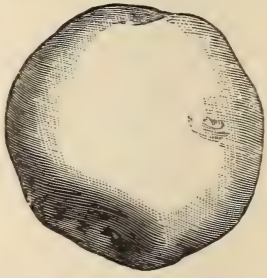
Truffe d'Août.—Tubers medium-sized, rounded, bright red; eyes moderately sunk; flesh yellow; shoot red. Stems erect,

rather stiff; leaves dark gray-green; flowers white. A mid-season variety, productive, and, many years ago, well known and highly esteemed.

Violette (*Hundred-fold Potato*).—A very old and productive variety, grown for about a century, and occasionally comes still to the Paris market. Tubers round and often squared at both ends, notched, eyes deeply sunk; skin deep purple; flesh yellow; shoot violet.

Xavier (*Patte Blanche*).—Tubers oblong, almost cylindrical, pale pink, slightly notched; flesh yellow-white; shoot pink. Stems

Violette (Hundred-fold) Potato.



De Zélande (Red Regent) Potato.

rather long; leaves gray; flowers white. This variety is worthy of recommendation on account of its good quality, but it is very liable to be attacked by the disease.

Yam, or **Igname.**—Like the preceding variety, this one also suffers greatly from the disease, and it is difficult now to meet with it in a perfectly healthy and vigorous condition. The tubers are oblong, rather large, almost cylindrical, and slightly notched; skin pale red, smooth; shoot red.

De Zélande (*Red Regent or Gosforth Seedling*).—An excellent half-late variety, keeping well. Tubers round, medium-sized; skin bright red, slightly rough; eyes faintly marked; flesh yellow; shoot red.

II. English Varieties

Alice Fenn.—Tubers oblong, kidney-shaped, very regular; skin yellow, smooth; flesh pale yellow; shoot violet. Stems very scanty, slender and pliant; leaves small and few; flowers violet. A handsome, rather early, but not very productive kind.

Bovinia.—Tubers very large, long, broad, flattened, rather deeply notched, and yellow variegated with red, especially towards the top and near the eyes; flesh yellow-white. Stems vigorous growing; leaves large. A very late variety, producing tubers which sometimes weigh over two pounds each, but are not very

numerous. The flesh is watery and of only middling quality. The variety is more curious than useful.

Britannia.—Tuber yellow, long; flesh yellow; shoot white. Resembles very much the Royal Ash-leaf Potato.

Coldstream, or **Hogg's Coldstream.**—Tubers round, small or medium-sized; skin and flesh yellow; flowers and shoot violet. Stems small and pliant, generally prostrate; leaves rounded, grayish green. A very good, hardy and early kind, but only moderately productive.

Dalmahoy.—Tubers round, small or medium-sized, white; eyes rather well marked, but not very deeply sunk; shoot violet. Stems erect, short, seldom exceeding 1 ft. in height; leaves gray, rather crumpled, with large pointed leaflets. The flowers fall off without opening. A selected form of the Regent.

Dawe's Matchless (Synonyms: Excelsior Kidney, Webb's Imperial, Early Bryanstone Kidney, Manning's Kidney, England's Fair Beauty, Chagford Kidney, Wormley Kidney, Champion Kidney).—A very fine and productive mid-season Potato. Tubers remarkably handsome, oblong, sometimes flattened, sometimes kidney-shaped, exceedingly smooth, nearly white, and often measuring 5 or 6 in. in length, by 2 in. or more in diameter; eyes hardly marked; flesh white; shoot violet. Stems rather vigorous, erect; leaves rounded, reticulated, and of an almost black-green colour; flowers white. This variety is not much grown in France, where we cultivated it for some time by mistake under the name of *P. Conféderée*. The true *P. Conféderée* (a synonym for *P. Marceau*), however, has violet-coloured flowers and broader and yellower tubers.

The Dean.—Tubers round or slightly flattened, skin dark purple, and wrinkled; flesh yellow; shoot violet. A half-late, fairly productive variety, remarkable for the regular shape and dark colour of its tubers.

Early Emperor Napoleon.—Tubers almost spherical or slightly flattened, and entirely devoid of eyes; skin slightly wrinkled, red, and, in exceptional cases, variegated with yellow; shoot red; flesh yellow-white. Stems slender, usually trailing on the ground; leaves exceedingly narrow and gray; flowers red, in thin clusters. A half-early and not very productive kind, but remarkable for the handsome appearance and regular shape of the tubers.

Early June (*Kerr*).—Tuber flat, almond-shaped, yellow, smooth; shoot white; flesh yellow. A sub-variety of the Royal Ash-leaved Potato.

Early May Queen.—Tubers small, round, red, rough-skinned; eyes well marked; flesh white; shoot white. Resembles Early Rose.

Early Puritan.—Tubers yellow, smooth ; eyes numerous, broad, not much sunk but well marked ; flesh white ; shoot white. Leaves light green, rather small, slightly spoon-shaped.

Fenn's Early Market.—Tubers round, small, or medium-sized rather flattened ; skin yellow, smooth ; eyes not much sunk ; shoot pink ; flesh nearly white. Stems of very scanty growth, weak, and pliant ; leaves pale green ; flowers white, not numerous. This excellent small variety is one of the earliest of all the Round Yellow Potatoes, and is remarkable for the small size of its stems.

The Garton.—Tubers yellow, round, smooth ; eyes very few ; shoot and flesh white. Very like the Van der Veer Potato.

Gem (*Kerr*).—Tubers yellow, round ; eyes few, lightly notched ; flesh white ; shoot violet-coloured.

General Roberts (*Kerr*).—Tubers yellow, long, flattened ; eyes few, not notched ; flesh white ; shoot copper-pink. A late variety, vigorous. Stem copper-coloured, erect ; flowers reddish lilac, numerous, in large erect clusters.

Giant Reading.—Tubers large, oblong or kidney-shaped, yellow, smooth ; flesh white ; shoot pink. Stems numerous, vigorous, short, spreading, slightly angular ; leaves abundant, long, with short petioles ; leaflets medium-sized, oval or oblong, very hairy, often folded ; flowers falling off. This variety bears some resemblance to the Magnum Bonum, but is more productive. It is not liable to disease, and keeps well.

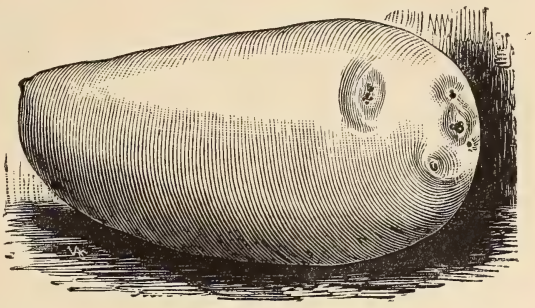
Golden Eagle and **Radstock Beauty.**—It is very difficult to distinguish these two varieties from each other, and they are probably identical. The tubers are yellow, variegated with red, round, and slightly flattened in one part ; skin very smooth and having a very pretty and very peculiar appearance ; shoot red. Stems of moderate height ; leaves dark green ; flowers red. Tubers rather late to ripen and moderately productive.

Grampian.—This variety very much resembles the Early Emperor Potato, described above, but has somewhat darker and more numerous leaves and redder flowers. The tubers do not exhibit any well-marked difference. The Grampian Potato is distinguished by the remarkably regular and symmetrical shape of the tubers, which are spherical or flattened, but always rounded in outline. They are almost entirely devoid of eyes and are of a fine red colour ; they are also hardy and rather productive, ripen half-late, and keep very well.

Harbinger (*Sutton*).—Small, round, distinct tuber ; shoot red. Leaves resembling those of Sharpe's Victor Potato, or even larger.

International Kidney.—A half-late variety, tuber almond-shape, smooth, well shaped and often very large, almost white ; flesh very pale yellow ; shoot violet.

King of Flukes (*Meldrum Conqueror*).—Tubers oblong, often rather short, slightly flattened; skin golden-yellow; eyes faintly marked; flesh very yellow, fine, and of excellent flavour; shoot violet. Fairly productive, ripens mid-season.



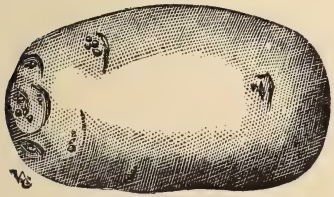
International Potato.

Lady Webster.—Tubers round, very smooth, somewhat flattened, yellow, and rather plentifully variegated with red; shoots red. Stems short and drooping, green; leaves not numerous, with very glistening leaflets, resembling those of the Early Marjolin Potato.

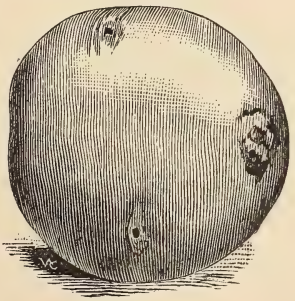
Leda (*Kerr*).—Tubers oblong, pale red; eyes very few, slightly notched; flesh yellow; shoot pink. Vigorous, erect stems. Flowers small, white. Resembles in habit the Red Regent, and its tubers are those of the Early Rose.

Lord of the Isles (*Kerr*).—Tubers yellow, oblong; eyes few, not notched; flesh white; shoot pink. Very like Early Rose in its vegetation, but the leaves are smooth and more erect. Flowers white.

Milky White.—Tubers white, slightly salmon tinted, very smooth, flat in one part, oblong, and without eyes or notches; shoot pink. Stems of scanty growth; leaves slight, pale green; flowers white. A handsome half-early variety, producing very clean-skinned tubers; but several American varieties have a still finer appearance, and are, at the same time, more productive.



King of Flukes Potato.



Model Potato.

Model.—Tuber pale yellow, very regularly rounded, slightly flattened; eyes faintly marked; skin smooth or rough, according to the soil; flesh pale yellow; shoot violet.

Mona's Pride.—A variety very closely resembling the Early Marjolin Potato in its habit of growth, but differing entirely from it in the shape of the tuber, which is very short, or even round and flat. It is also somewhat later and somewhat more productive than the Marjolin Potato.

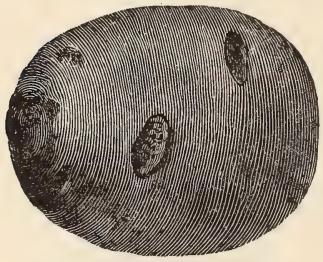
Our Boys (*Kerr*).—Tubers yellow, long, kidney-shaped; eyes few, slightly notched; flesh pale yellow; shoot violet. Stems long and strong, slightly copper-coloured; flowers white, in large clusters. Ripens late.

Paterson's Victoria.—A half-early variety, very floury, keeping perfectly, disease resisting. Tubers oblong or rounded, flattened; eyes faintly marked; skin salmon-yellow; flesh yellow; shoot violet.

Porter's Excelsior.—One of the most perfect Potatoes as regards the shape of the tubers, which are rounded, yet flattened as pebbles are, being nearly twice as broad as they are thick; skin yellow, smooth; flesh pale yellow; shoot pink. Stems trailing on the ground; leaves not numerous, dark green; flowers white. This is a half-late variety; it is not very productive, and its chief merit consists in the handsome appearance of the tubers.

Professor (*Kerr*).—Tubers red, elongated, shaped like those of Early Rose; eyes numerous, notched; flesh white; shoot red. Stems strong, coppery, almost erect. Flowers pink, numerous, seeding abundantly.

Purple Ash-leaved Kidney (Synonyms: Jersey Purple, Black Kidney, Black Prince, Select Blue Ash-leaf, or Paterson's Long Blue).—Tubers long or very long, flattened, more or less kidney-shaped, and very smooth; skin dark violet colour, even, without wrinkles or hollows around the eyes. Stems rather slender and brown; leaves not numerous and of a dark gray-green colour; flowers lilac. A rather early kind, tolerably productive, and of good quality. Many people do not like the dark violet colour of the tubers.



Reading Russet Potato.

Reading Russet. — Productive, ripening mid-season. Tubers slightly elongated, thick, eyes faintly marked; skin somewhat rough, grayish red; flesh pale yellow; shoot red.

Rector of Woodstock.—Tubers very regular in shape, round, but slightly flattened; skin somewhat wrinkled, grayish white, faintly tinged with yellow; eyes hardly marked; flesh white, very floury, and fine flavoured; shoot violet-coloured. Stems very short; leaves slight, slender, and few; flowers violet, rarely produced. This small variety is only

moderately productive, but the tubers are of fine quality and exceptionally handsome. It is one of the best varieties raised by Mr. R. Fenn.

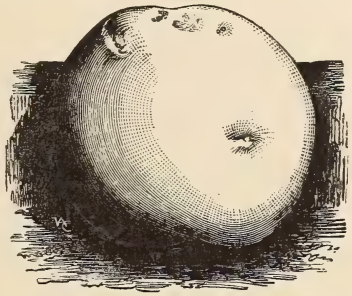
Rentpayer.—Tubers yellow, usually round, sometimes long; eyes few, not notched; flesh white. A good sub-variety of Magnum Bonum.

Saint Patrick.—A productive and vigorous kind. Tubers white or pale yellow, oblong, not flattened, and rather irregular in shape; flesh white.

Schoolmaster.—Tubers large, round, generally even and regular in shape; skin rough, white; very handsome, and of first-rate quality; shoot pink. Flowers white. Great cropper; one of the best Potatoes grown.

Scotch Blue.—Tubers rounded, flattened in one part, smooth; eyes faintly marked; skin thin, and of a dark, almost blackish violet colour; flesh white; shoot dark violet. Stems rather short, but vigorous growing; leaves rather broad, gray; flowers violet-coloured. A half-late, rather productive, and very hardy variety, of fine quality.

Standard.—This variety is recommended for its handsome smooth white tubers and the delicate flavour of the flesh, which is white and floury. It is a pretty early and very productive kind, and is highly esteemed for table use.



Standard Potato.

Superb (*Kerr*).—Tubers yellow, round; eyes numerous, slightly notched; flesh very white; shoot pink.

Turner's Union.—Tubers yellow, round, small or medium-sized, and pretty regular in shape; eyes somewhat sunk; flesh pale yellow; shoot yellowish white, with a violet-coloured point. Stems of scanty growth. Leaves rather large, but not numerous. Flowers lilac, usually abortive. A good small-sized early variety, but there are many others of much more account.

White Emperor.—A rather vigorous but short-stemmed variety. Tubers very smooth, nearly white, round, and slightly flattened, very like those of the Model and Schoolmaster Potatoes; shoot lilac. Leaves reticulated, and dull green.

Wonderful Red Kidney.—A half-early variety. Tubers flattened, elongated, or somewhat kidney-shaped; skin red, very smooth; eyes faintly marked; flesh pale yellow; shoot red.

Woodstock Kidney.—A handsome vigorous variety. Tubers white, oblong, smooth, and well shaped; shoot violet. Stems stout

and brown. Leaves broad, and light green. Flowers violet, in strong clusters, and seeding abundantly. Somewhat subject to disease.

Wormleighton Seedling.—A half-late variety with medium-sized stems and very large smooth almond-shaped tubers, handsome in appearance, but only fair in quality. *

III. American Varieties

For the last thirty years the Americans have been active in sowing Potato-seed for raising new varieties, and now rival the English raisers in the success which has attended their efforts. A great number of their new varieties—such as the Early Rose, Snowflake, etc.—were at once adopted by Potato-growers in Europe as well as in America. These varieties have already been described by us as of the first rank, and we shall now mention some others, which, perhaps, only require to be better known in order to be as well appreciated.

Adirondack.—A vigorous mid-season variety. Tubers round or slightly flattened, smooth, pale red; flesh white; shoot pink. Stems erect; leaves broad; flowers reddish violet.

Alpha.—An early variety. Tubers white, slightly elongated, somewhat flattened; stems short; leaves fairly large, but scanty.

Bresee's Peerless.—Tubers handsome, very much flattened, almost as broad as long, oblong or sometimes heart-shaped, and almost always notched at the bottom; skin and flesh white; shoot pink. Leaves pale green, broad, and somewhat curled; flowers white. A half-early and exceedingly productive variety.

Bresee's Prolific.—In productiveness and quality comparable to Early Rose. The tubers are flattened, oblong, sometimes almost square at both ends; skin smooth, pale yellow more or less tinged with salmon-red, flesh white; eyes faintly marked; shoot pink.

Brownell's Beauty.—Tubers oblong, rather flattened, and usually very broad; skin somewhat wrinkled, and a dark, slightly vinous, red; flesh white; shoot pink. Stems erect and vigorous; leaves rather broad, and yellowish green; flowers lilac-red. A very productive mid-season variety, of great merit. The tubers are very handsome and generally very regular in shape.

Calico.—Productive, half-late. Tuber rounded or oblong, but always flattened, skin very smooth, bright yellow, with broad red stripes; eyes scarcely marked, flesh pale yellow; shoot red.

Centennial.—Tubers bright red, spherical or slightly flattened, and very smooth; eyes hardly marked; shoot red. Stems of medium size; leaves broad, pale green; flowers reddish. A half-early and rather productive variety. The tubers keep well for an American kind.

* Select List of Varieties, see pp. 770, 771.

Compton's Surprise.—A vigorous half-early variety; tubers purple, oblong, resembling those of Early Rose, except that they are purple; flowers white.

Early Cottage.—A very productive variety. Tubers large or very large, rounded, and thick; eyes rather deeply sunk; skin often wrinkled, and very pale yellow; flesh white. Stems rather scanty in growth compared with the weight of the crop of tubers; leaves gray-green and rather curled; flowers lilac, usually abortive.

Early Goodrich.—Tubers oblong, thick, not much flattened, often almost pointed at the top; flesh and skin white; shoot pink. Leaves of a very light green, almost yellow; flowers white. A handsome and productive variety, but too often attacked by the disease.

Early Ohio.—Tubers pink, smooth, oblong; eyes very faintly marked; shoot red. Stems erect, stiff, slightly tinged with copper colour; leaves very broad, flat, with extremely large leaflets of a light and grayish green. This variety does not flower.

Eureka.—Tubers long, rather flattened, often square at the ends, and sometimes slightly notched; skin white, hardly yellow, and very slightly wrinkled; flesh white; shoot pink. Stems of scanty growth; leaves of a very light green; flowers white. A very productive and rather early variety. The tubers are rather irregular in shape, and sometimes quite nondescript in this respect.

Extra Early Vermont.—There is only an exceedingly slight shade of difference between this Potato and the Early Rose, so that they are often mistaken one for the other. The tuber of the Extra Early Vermont is a little broader and flatter, and ripens two or three days earlier than that of the Early Rose.

King of the Earlies.—Tubers somewhat angular or irregular in shape, rounded and slightly flattened in their general outline, and with the eyes rather deeply sunk; skin smooth, but dull in hue, of a salmon-tinted and grayish pink colour; flesh white and floury; shoot pink. Stems of very scanty growth; leaves broad, of a pale grayish green, withering very early, without any flowers. This is really one of the earliest of all Potatoes.

Late Rose.—In many respects this variety is very like the Early Rose, and even the difference in earliness which exists between the two varieties does not exceed ten days. The Late Rose, however, is distinguished by the greater size of its tubers, which, on the other hand, are not so numerous as those of the Early Rose. They are also of a purer pink, and not so much tinged with salmon colour.

Manhattan.—Tubers round, slightly flattened, and variegated with yellow and violet colour; shoot pink, spotted with violet. Stems short and stiff, about 2 ft. high; leaves rather abundant, broad, rounded, gray-green, much folded and reticulated; flowers generally wanting.

Peach-blow.—Tubers rounded, very smooth, and of a fine white colour, slightly tinged with pink around the eyes; shoot pink. Stems erect, stiff, vigorous, and spotted with brown; leaves numerous, rather slender, and light green, with oval-acute leaflets; flowers numerous, violet-red, hardly ever producing seed. There is a sub-variety, named the White Peach-blow, in which the eyes are not tinged with pink.

Queen of the Valley.—Tubers very handsome, large, oblong, slightly flattened, and very smooth; eyes few and faintly marked; skin very pale red; shoot pink. The tubers are very like those of Brownell's Beauty, but are not so dark coloured.

Ruby.—Tubers oblong, slightly flattened, smooth, regular in shape, and of a bright red colour; flesh white. Stems of medium size, and rather vigorous growing; leaves of a pale and somewhat grayish green colour. A half-late variety.

Triumph.—Tubers round and of a rather bright-red colour; eyes slightly marked and not very deeply sunk; shoot pink. A half-early and productive variety.

Willard (*Red Fluke*).—Tubers oblong or pear-shaped, almost pointed at the top and thick at the bottom; skin rather smooth, bright red, sometimes marbled with yellow; shoot pink. Stems erect and stiff; leaves light green; flowers lilac-red. A very distinct and rather handsome variety, but very subject to be attacked by the disease.

IV. German Varieties

Abdul Hamid (*Paulsen*).—Tubers yellow, oblong; eyes few and but little notched; flesh yellow. A half-late variety, with short thick stems. Leaves crimped; flowers lilac.

Achilles.—Tubers large, rounded; eyes somewhat sunk. Stems very vigorous, over 3 ft. high, quadrangular, winged, and spotted with brown; leaves numerous, but small, very much reticulated, curled, and of a blackish green colour; flowers lilac, in numerous clusters, and yielding seed.

Alkohol.—Tubers round, somewhat flattened; eyes rather numerous and well marked. Stems about 2½ ft. high, stout, green, quadrangular, and erect; leaves broad, clear green, and somewhat crimped; flowers white, abortive.

Aurora.—Tubers oval, flattened; eyes numerous and pretty well marked. Stems thick, copper-coloured, often trailing, and about 2 ft. 8 in. long; leaves very abundant, flat, and of a clear, slightly grayish, green; flowers white, abortive.

The four preceding varieties were raised by Mr. Paulsen, who has devoted his attention to the production of new varieties of

Potatoes in Germany, as Mr. Fenn and Mr. Kerr have in England, and Mr. Bresee in America.

Biscuit.—A vigorous and rather productive variety. Tubers small and very numerous, yellow, rounded, and slightly notched; shoot pink. Stems rather long and slender; leaves slight, pale green. Ripens half-early.

Bismarck.—Much extolled some years ago; but seldom grown now; very rich in starch, but a poor cropper. Tubers small, round, red; skin much split. Stems brown; leaves dark green.

Blaue Riesen.—Tubers very large, oblong, dark purple, often knobby; flesh very white; shoot violet. Stems strong and very long, usually spreading, and violet; leaves small, dull green; leaflets small, oval-pointed, hairy and more or less reticulated; flowers violet striped white, falling without seeding. A field Potato, one of the few sorts that are unfit for the table. It is largely grown for starch, but its production is liable to variations, for which reason growers now prefer sorts of the Imperator type.

Euphyllos.—Tubers white or faint pink, round or oblong; eyes moderately sunk. A vigorous, productive, half-late variety, with large fine leaves, smooth, even, and light green, whence the variety derives its name. It is one of the varieties raised by M. Paulsen.

Feinste kleine weisse Mandel.—Tubers ovoid, small, very numerous, nearly white, smooth, and without eyes; shoot violet. Stems large; flowers white. The quality of the tubers is good, but they are rather small sized.

Frühe blaue Rosen-.—Tubers round, pale red, slightly striped purple; eyes few, faintly notched; flesh white. Leaves small, quite green; flowers white. A variety for field culture.

Frühe rothe Märkische.—A good, hardy, and productive field variety. Tubers red, nearly round, and rather smooth; shoot red; flesh yellow. Stems vigorous, often trailing; leaves gray-green; flowers red. Ripens half-late.

Gelbe Rose (*Paulsen*).—Tubers round, slightly tinged with pink; flesh white, shoot pink; but little grown now.

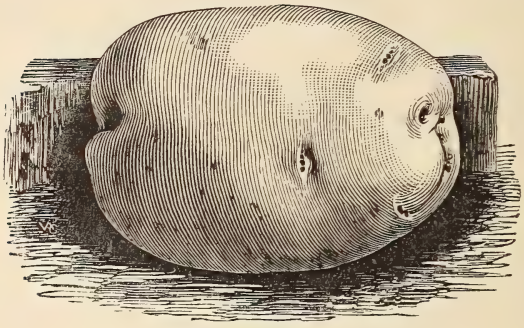
Globus (*Richter*).—Late, productive, and vigorous. Tubers yellow, large, round, sometimes irregular in shape; eyes numerous, deeply sunk; flesh yellow.

Hannibal (*Paulsen*).—Productive, rather late, suitable for field culture. Tubers round, slightly flattened; skin thin, pink, coloured more deeply round the eyes; flesh white; flowers white.

Hermann (*Paulsen*).—A late, productive variety, for field culture. Tubers round, medium-sized, somewhat knobby; eyes pretty deeply sunk; shoot violet-coloured.

Juno (*Paulsen*).—Tubers flattened, oval or slightly square at the ends; skin pinkish white, more deeply coloured around the eyes and at the ends; flesh yellowish white; shoot pink. For field culture.

Kaiser-Kartoffel.—A fine, vigorous, and rather early kind, resembling certain American varieties, especially Bresee's Prolific; it is, however, somewhat later and produces larger tubers. In habit of growth it is much the same.



Juno Potato.

Karlder Grosse.—Tubers yellow, round; eyes numerous, notched. Flesh and flowers white.

Kleopatra (*Paulsen*). — Tubers small, flattened, red; eyes faintly marked, flesh white. Flowers lilac-red.

Kopsell's frühe weisse Rosen-Kartoffel.—This variety very much resembles Bresee's Prolific, but is somewhat earlier, and has yellower tubers, with less of the pink tinge. The difference, however, is very slight, and it would be no great mistake to consider the two as synonymous.

Lerchen-Kartoffel.—Tubers yellow, round, rather small, but numerous; eyes somewhat sunk; skin very smooth; shoot white. Stems medium-sized, but fairly vigorous; leaves light green; flowers white. This handsome small variety is very distinct. The tubers are of good quality, but only moderately productive.

Mangel-Wurzel (Synonyms: Doigt de Dame, Constance Péraut, Catawissa, Bush Potato).—Tubers long, broad, flattened, oblong, and most usually notched, entirely red, or variegated with red and yellow, and generally very large, sometimes weighing over two pounds each. Most commonly they ripen irregularly and keep badly. A late kind, more suitable for feeding cattle than for table use.

Montana.—Tubers pink, long; eyes few, flesh yellow. A late variety with erect, strong, brown stems; flowers lilac.

Richter's Schneerose.—Tubers large, thick, oblong, white; eyes faintly marked; shoot pink. Stems vigorous, erect, about 2½ ft. high. Leaves stiff, broad, round, and of a dark and somewhat gray green. Flowers pink, opening well, but falling off abortive.

Riesen Sand-Kartoffel (*P. de Terre Géante*).—Tubers long, flat, yellow variegated with red, especially towards the top; eyes rather deeply sunk; shoot pink. Stems short, very stiff, thick, and green; leaves very much curled and reticulated, rather broad, and of a dark green colour; flowers pink, abortive.

Rosalie (*Paulsen*).—Vigorous and productive. Tubers oblong, thick, somewhat knobby, eyes not much sunk, marked with pink, as

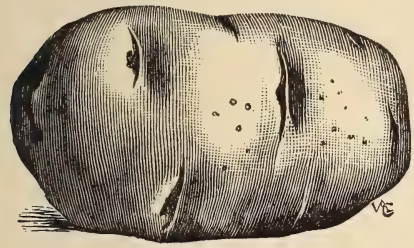
is also the end of the tuber; flesh white, fine and very floury; shoot pink. Stems erect, fairly strong; leaves large, light green; flowers pinkish lilac. Early, and rich in starch.

Rothe Unvergleichliche Salat-Kartoffel.—Tubers nearly cylindrical, one and a half times or twice as long as broad, very much notched; skin red. Distinguished from those of any other kind by the appearance of the flesh, which is variegated with red and yellow. Stems rather crowded together, vigorous, and very leafy. A somewhat late kind, but keeps well.

Sächsische Zwiebel-Kartoffel gelbfleischige (*Rouge de Bohême*).—Tubers round or somewhat long, not flattened, and rather notched; skin entirely red or red variegated with yellow; shoot pink; flesh pure yellow. Stems very vigorous, branching, sometimes nearly 6½ ft. long; leaves very abundant, and dark green; flowers violet-red. A late but very vigorous and productive variety. The tubers keep well, and contain a good deal of starch.

Sächsische Zwiebel-Kartoffel weissfleischige.—Tubers rounded, somewhat flattened, of medium and very uniform size; eyes slightly sunk; skin smooth, red; flesh white; shoot pink. Stems luxuriant, long, rather slender, and usually branching and trailing; leaves of a dark and slightly gray green; flowers generally abortive.

Spargel-Kartoffel (*P. de Terre Asperge*).—Tubers small, almost cylindrical, but short, being only twice as long as broad; skin and flesh yellow; shoot pink. Stems of medium height, rather slender; leaves clear green; flowers white. A half-late and very distinct small kind, esteemed on account of the firmness of the flesh, which is not easily broken, even when cooked.



Van der Veer Potato.

Unica (*Paulsen*). — Half-early; tubers yellow, round, notched; flesh pale yellow; flowers pink, in large clusters.

Van der Veer. — Tuber rounded or slightly elongated; skin smooth or somewhat rough; eyes pretty much sunk; flesh pale yellow; shoot pink. Late and productive; suitable for field culture.

SWEET POTATO

Convolvulus Batatas, L. *Convolvulaceæ.*

French, Patate douce. *Italian*, Patata. *Spanish* and *Portuguese*, Batata.

Native of South America.—Perennial, but cultivated as an annual. —Stems creeping, often 10 ft. long or more, with numerous heart-shaped leaves of a dark green colour, sometimes glistening; flowers

axillary, like those of a Convolvulus, seldom blooming in the climate of Paris ; roots abundant, very much ramified, and bearing tubers more or less rounded or elongated in shape, according to the variety. The flesh of these tubers is tender, floury, sweet, and, in most cases, rather perfumed. They are the edible part of the plant, and are produced in very great abundance in warm countries, where, as an article of food, they occupy, to a certain extent, the same place which the Potato does with us.

CULTURE.—As the Sweet Potato requires a rather long time to complete its growth, it is difficult to cultivate it in the climate of Paris without the aid of artificial heat ; and as, moreover, the tubers keep badly in northern countries, gardeners are in the habit of starting some plants in the middle or end of winter, either in a plant-house or in a hot-bed. As soon as the shoots are strong enough, they are detached from the tubers and planted separately in pots, in which they remain until they are planted out. This is done from March to the end of May, according as it is desired to forward the growth of the plants. Those planted out in March and April should have the protection of a frame. In May this is not required, and the plants may then be simply put out on beds of dry leaves covered with from 4 to 6 in. of light soil or compost. Copious waterings are necessary as soon as the hot weather commences, and the stems quickly cover the whole bed, and even extend beyond it. In the South only, the Sweet Potato may be planted in the open air on sloping beds of rich mellow soil, and watered by means of trenches cut between the beds, which should be at least 6½ ft. apart. The tubers are well grown in four or five months, and are taken up as late as possible in the climate of Paris, but care must be taken to lift the crop as soon as the stems and leaves have been touched by frost, as, the soil being no longer covered by the foliage, the frost would easily reach the tubers, which very often grow level with the surface of the ground, and are very sensitive to cold. The tubers are very difficult to keep, cold and damp being equally injurious to them ; they should, therefore, be kept in a very dry place, the temperature of which should be as uniform as possible, and never fall below 5 or 6° C. (40° or 42° Fahr.). It is sometimes a good plan to store them in boxes, which are then filled up with dry sand, peat, or sawdust. The tubers should not be allowed to touch one another, and the boxes should be examined from time to time, and any tubers which have commenced to decay should be removed. Like the ordinary Potato, the Sweet Potato may be propagated from seed, but varieties are not reproduced true in this way, and it is only employed for the purpose of raising new varieties. However, the plant never seeds in the climate of Paris, and it is useless to attempt the culture of it in England.

USES.—The tubers are prepared in various ways and eaten like those of the ordinary Potato. The flesh is sweet, very tender, and, in most varieties, has a perfume somewhat like the scent of violets. As in the case of the common Potato, there is a vast difference in the flavour of well-grown "mealy" and that of waxy roots.

Of Sweet Potatoes, an almost infinite number of varieties are cultivated. We shall only mention the earliest kinds, and those which succeed best in France.

Patate Igname.—Tubers very large, oval or oblong, blunt at the ends, and often channelled or furrowed; skin grayish white; flesh white, not very fine in texture, rather floury, and moderately sweet. This is one of the most productive kinds, the tubers sometimes weighing nearly nine pounds each.

Patate Jaune.—A somewhat late variety, but of excellent quality. Tubers long, slender, very thin, about 16 in. long and 2 in. in diameter; skin yellow, smooth; flesh of a handsome yellow colour, very fine flavoured and sweet.

Patate Rose de Malaga.—Tubers oblong, somewhat variable in shape, often marked with longitudinal furrows, and thicker at one end than at the other; skin of a somewhat grayish pink colour; flesh yellow, very fine in texture, and moderately sweet. This is one of the earliest and most productive varieties.

Rose de Malaga Sweet Potato ($\frac{1}{3}$ natural size).

Red Sweet Potato ($\frac{1}{3}$ natural size).

Red Sweet Potato.—This is the sweetest, most highly perfumed, and least floury of all varieties. Tubers very long and slender, about 20 in. in length, by 2 in. or less in the diameter of the thickest part, but much thinner at both ends. They are almost

always sinuated or undulated. Skin smooth, red slightly tinged with violet; flesh white in the interior, and light pink under the skin. This is the variety which is most generally grown by gardeners in the vicinity of Paris.

Many other varieties of Sweet Potato are cultivated in Algeria and other French colonies, and even in the United States, where this vegetable forms an important article of commerce.

PURSLANE

Portulaca oleracea, L. *Portulacaceæ.*

French, Pourpier. *German*, Portulak. *Flemish* and *Dutch*, Postelijn. *Danish*, Portulak. *Italian*, Porcellana. *Spanish*, Verdolaga. *Portuguese*, Beldroega.

Native of India.—Annual.—The Purslane, which appears to be undoubtedly of East Indian origin, has been naturalised amongst us to the extent of having become a weed. It has a thick fleshy stem, which sprawls on the ground when the plant grows alone, but is unbranched and erect in plants grown closely together. Leaves thick, shortly spathulate; flowers very small, yellow, growing from the axils of the leaves, and succeeded by rounded, slightly compressed seed-vessels filled with very small, shining, black seeds. Their germinating power lasts for seven years at least.

Green Purslane ($\frac{1}{8}$ natural size; detached branch, $\frac{1}{3}$ natural size).

CULTURE.—The seed is sown, either in drills or broad-cast, in light soil, from May to August, and the leaves and stems may begin to be gathered for use in about two months after sowing. The same plants will yield two or three gatherings, provided they are watered frequently. Sowings are often made in frames or on hot-beds, in order to obtain a winter or spring supply. In this case the seed is sown from December to March on hot-beds, as the plant requires a pretty high temperature to grow vigorously, and leaves may be gathered in two months or two months and a half after sowing.

USES.—The leaves are eaten cooked, or raw as salad.

Green Purslane.—This is the wild plant developed and increased in size by continuous cultivation of selected large-leaved specimens. Even in the wild state some Purslane-plants are met with which have a more marked tendency than others to grow with the stems erect instead of sprawling on the ground, and this form it has naturally been sought to reproduce and improve by cultivation, as being more productive on an equal area, and more easy to gather than plants of spreading habit.

Large-leaved Golden Purslane ($\frac{1}{8}$ natural size; detached branch, $\frac{1}{3}$ natural size).

Golden Purslane.—This variety is easily distinguished from the preceding one by the light, almost yellow, tint of its leaves. It is grown and used in exactly the same manner. Its peculiar tint appears to be less owing to a weaker colouring of the parenchyma of the leaf than to a greater thickness of the epidermis, which is of a yellow hue. When cooked, the leaves do not differ very much in colour from those of the Green Purslane.

Large-leaved Golden Purslane.—This variety is very distinct on account of the size of the leaves, which are at least double as large as those of the two preceding kinds, and grow closer together on the stem. The plant does not grow quite so rapidly as either of the two other kinds, but it is quite as productive, being more thick set and compact in habit.

WINTER PURSLANE

Claytonia perfoliata, Don. *Portulacaceæ.*

French, Claytone perfoliée. *Flemish*, Doorwas. *Dutch*, Winter-postelijn. *Spanish*, Verdolaga de Cuba.

Native of Cuba.—Annual.—Leaves all radical, very tender, thick, and fleshy, the earliest ones very narrow and lanceolate, the following ones more or less broad, but always pointed; stems numerous, somewhat taller than the leaves, and bearing at the end

a sort of broadly funnel-shaped collarette of the same texture as the leaves, from the centre of which issue short panicles of small white flowers; seeds small, black, slightly flattened, and lentil-

Winter Purslane ($\frac{1}{4}$ natural size).

shaped. Their germinating power lasts for five years. The seed is sown, where the plants are to stand, all through spring and summer. The leaves are eaten as salad, or cooked like ordinary Purslane or Spinach.

RADISHES

Raphanus sativus, L. *Cruciferæ.*

French, Radis. *German*, Radies. *Flemish*, and *Dutch*, Radijs. *Danish*, Haveroed-dike. *Italian*, Ravanello. *Spanish*, Rabanito. *Portuguese*, Rabao.

Native of South Asia (?).—Annual.—The type or original plant from which the cultivated forms of Radishes have been derived is not known with certainty. The question has given rise to many inquiries and discussions, and probably will give rise to many more, as the highest and most competent authorities on the subject hesitate to decide the point. Up to the present, no wild plant has been found with characteristics which would allow of its being regarded unmistakably as the progenitor of cultivated Radishes. The opinion that these have sprung from *Raphanus Raphanistrum* (the Wild Radish of our fields) may be maintained, but there are very important indications which appear to us to be opposed to it. Besides the differences in the colour of the flowers (which, in the Wild Radish, are often yellow, but never so in the cultivated

varieties), and in the formation of the siliques or seed-vessels (which are jointed in the Wild Radish, and not so in the others), it must be observed that the cultivated plants are much more sensitive to cold than our native Wild Radish, a fact which would appear to point to a more southern clime as the native habitat of the first parents of these plants. Moreover, the stems of the cultivated plants grow erect, and not in an inclined or almost prostrate position, as is frequently the case with the Wild Radish. There are two Asiatic forms of Radish which have unjointed, fleshy, edible seed-vessels, viz. the Madras Radish (*Radis de Madras*) and the Mougri, or Snake Radish, of Java (*Mougri de Java* ou *Radis Serpent*), and it is towards the countries in which these forms, resembling the cultivated Radish in the structure of the seed-vessel and in all their characteristics of growth, are found, that we think we should look for the original plant which was their common ancestor.

The cultivated Radish is looked upon as an annual, because the growth of the flower-stems is not preceded by any period of repose in the growth of the plant ; the large late varieties, however, should rather be considered biennial. The leaves are oblong in shape, the flower-stems are branched, and the flowers are white or lilac, but never yellow. The seed is reddish, round or slightly elongated, and usually somewhat flattened at the sides. Its germinating power lasts for five years.

The French are such excellent Radish growers that those who care to be informed as to the best way of growing these roots can hardly do better than read the cultural notes given under the three divisions. For various reasons, however, it may be well to give here the culture usually pursued in our own country, both in private and market gardens. A small and constant supply of crisp, delicately flavoured bulbs should be the only aim. The earliest will be had from a hot-bed or from under some glass protection. It is seldom we grow a special frame of Radishes, but secure all we want from frames planted with other crops. In January and February we are frequently making up beds of manure and leaves for forcing Potatoes, Carrots, etc., and amongst these are sown a few Radishes. When the Potatoes, for example, are planted in rows 15 in. apart, a row of Radishes may be sown between, and they will be ready for use and cleared off before the Potato crop in any way interferes with them. In Carrot-frames the same thing may be done, and sometimes a Radish-seed is dropped in here and there amongst the Carrots, as they will push up and be cleared off before the Carrots require much top room. Thus young spring Radishes are obtained without any special attention ; many, however, who try to grow early Radishes in this way make mistakes. One of these is sowing the seed too thickly, so that when the plants come up they are as a mat at top and bottom, and when this is the case useful roots are never formed. Thinning out some of the plants as soon as they can be handled is one way of

avoiding this, but it is a wasteful way; the better plan is always to sow thinly. One seed every few inches will give a much finer crop and better results altogether than close sowing. Many doubtless wonder why their Radishes do not all bulb, but allowing them to grow too close together is, as a rule, the cause of this. Many are most particular, too, in getting their seeds in and the crop brought to maturity, but after the usable part of it has been gathered neglect follows, and where Radishes have been raised in a Potato or Carrot frame it is no uncommon thing to see worthless Radish tops overshadowing everything by the time the other crops should have been at their best. Cultivators should always be particular in clearing away all Radishes as soon as they become too old for use, and any which do not bulb early may be thrown away altogether.

Special Beds.—In making up a special bed for early Radishes, a very shallow bed of fermenting material is sufficient; about 1 ft. in depth is enough, and 6 in. of soil should be put on the top of this. They bulb fastest early in the year in a moderately rich sandy mixture. The seed should be sown broadcast, very thin, and it should not be covered more than ½ in. deep. The earliest seed may be sown in frames in January and February, but in the latter month and throughout March seed may also be sown along the base of a south wall or in any sheltered sunny spot. Here the rule as to thin sowing should also be observed; in fact, this must be kept in mind throughout. When the little plants appear at first in the colder months of spring a slight protection will favour their free growth. A few branches or some similar covering is all that is needed.

Summer Radishes.—From April onwards throughout the summer select spots need not be chosen for Radishes, as they will do almost anywhere, their only requirements being a firm, rich, cool soil. Without this, especially in summer, the roots will become hot and stringy before they are well developed, and the period of their use will be very short. In general culture some may prefer having the seed in rows; others may sow broadcast, and good Radishes may be had in both ways. At no time should the seed be put more than ½ in. below the surface; the soil should always be trodden firmly over it, as this induces the plants to bulb quicker and better than when in loose material.

Winter Radishes.—Our rule is to sow a small quantity of seed every three weeks from the middle of January until the beginning of September, when we stop all sowings and dealings with the summer varieties, and devote one good large piece of ground to the Chinese Scarlet for winter. This sowing is made on a south border which may have been previously cleared of Potatoes or some other crop. The seed is put in in rows 15 in. apart, in order that plenty of air and light may be admitted to them in winter, and if the young plants come up too close they are thinned out to 6 in. apart. Under this treatment a uniform crop of useful bulbs is the result. We generally gather some of these by the end of October, when they are no larger than filberts. To have Radishes in the best possible condition, they must be grown quickly; and to do this in dry soils, frequent waterings during dry weather must be given them, otherwise by the time the roots are of a usable size they will generally

be stringy and ill-flavoured. Small sowings in quick succession are, therefore, preferable to large ones made at long intervals apart.

Culture for Market.—In the London market-gardens, the first two crops of Radishes of the year are generally grown amongst fruit-trees, if bush fruits or Roses do not occupy the ground. By sowing time, which is in November and December, the trees are leafless and pruned; therefore they do not offer much shade to the young Radish-plants, but rather protect them from cold winds and severe frosts, and before the trees have made much growth in spring the Radishes are fit for market, and the ground when cleared of them is available for being planted with Lettuces or other plants that are best suited for a shady situation. Crops of Radishes to succeed those under fruit-trees are sown in open quarters, in 6-ft. wide beds with alleys between them. After sowing, the seed is raked in with wooden rakes, and afterwards slightly covered with fine soil taken from the alleys. The surface of the bed is then rolled and, in the case of early sowings, slightly covered with long litter, which after the seeds have germinated is removed on every favourable opportunity, but immediately replaced on the appearance of frosty, snowy, or stormy weather. After the second week in February coverings are dispensed with if the weather is at all likely to continue mild for a time, as the plants have by this time become strong and better able to stand the cold. The litter is, however, kept in the alleys in case of emergency until all danger from frost is over, when it is removed entirely and converted into manure. Successional sowings are made in February, March, and April, in a manner similar to that just described, and in some cases during the summer. But, except in moist situations, Radishes do not succeed well in hot weather; therefore, where such situations do not exist, sowing ceases in spring, and recommences in August and September, if the weather be at all showery. A good crop of Radishes during the summer is profitable, and especially so in dry seasons. The ground chosen for them is usually that recently cleared of Celery, French Beans, Rhubarb, or Vegetable Marrows, which, after being deeply dug and heavily manured, is levelled and otherwise prepared to receive the seed. Sometimes Radishes are sown between Asparagus ridges, and in such positions they succeed remarkably well on account of the soil being deep and rich. When Radishes are required earlier in the spring than they can be gathered from the December outdoor sowing, they are obtained from frames placed on hot-beds, or trenches are dug out and filled with manure, on which a little soil is placed, and after sowing, the beds are covered over with litter. In March the first outdoor crops are usually ready for market. Birds are the worst enemies with which the Radish grower has to contend, and when large quantities are grown it is found necessary to employ boys to scare them away, otherwise they would devour all the seed, and even pull up the young plants in order to obtain the husks which adhere to the young leaves.

Uses.—The roots are eaten raw.

The varieties of Radishes are very numerous, and we shall divide them, according to their period of culture, into Small or

Forcing, Summer or Autumn, and Winter Radishes, the mode of culture which is suitable for each of these divisions being very different from that which should be employed for the others.

I. Small, or Forcing, Radishes

These Radishes are sown in the open air from February to November, usually broadcast in beds, and the seedlings are thinned out so as to allow the plants to grow evenly. The beds should be kept free from weeds, and frequently watered in hot dry weather. In about from sixteen to eighteen days, if the weather is favourable, and from twenty to twenty-five days if otherwise, the earliest plants will be fit for use. As for the rest, it may be four, five, or six weeks, according to the weather, before they are fit to be pulled. In spring, or late in autumn, the seed should be sown in a warm sheltered position; in summer a cool shady place is preferable. Sowings should be made in succession every fortnight or ten days, in order to keep up a supply of young tender Radishes. In December, January, and February, the seed is sown on hot-beds under frames or bell-glasses. The market-gardeners of Paris grow Radishes in the depth of winter on hot-beds covered with leaf-mould or compost, without any protection except that of straw mats, which are placed over them at night and in frosty weather, and are taken off whenever the weather is not too severe. These Radishes are usually fit to be pulled in from five to six weeks after sowing.

A. Round, or Turnip-rooted, Radishes

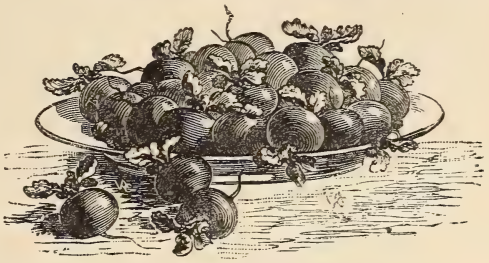
Scarlet Turnip Radish.—Root nearly spherical, slightly top-shaped when very young; skin somewhat vinous red; flesh white, slightly tinged with pink; leaves rounded, cut at the edges, and of a somewhat glaucous green colour; leaf-stalks faintly bronzed. In fine weather, as in May, this Radish is fit for use in about twenty-five days after sowing. It is hardy, does not become hollow at the centre too quickly, and grows well in ordinary garden soil.

Scarlet Turnip Radish
($\frac{1}{3}$ natural size).

Early Scarlet Turnip Radish.—Root more flattened than that of the preceding kind, well rounded underneath, having only a very slender, small tap-root, and resembling the ordinary Scarlet Turnip Radish in the colour of the skin; flesh very white; leaves short and close growing. This variety is fit for use in about twenty days after sowing, and can be grown in

ordinary garden soil, but compost or leaf-mould suits it much better. It becomes hollow at the centre sooner than the preceding kind.

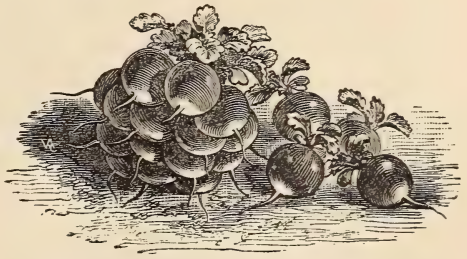
Forcing Scarlet Turnip Radish.—Root small, very regular, becoming quickly spherical, of a beautiful carmine-red, and leaves light and short. The root is formed and ready to pull before the fourth leaf (besides the cotyledons) has attained its full development—*i.e.* in sixteen or eighteen days. It requires to be grown in pure decayed spent manure (*terreau*).



Forcing Scarlet Turnip Radish.

Early Scarlet White-tipped Turnip Radish.—A handsome and exceedingly early variety. Root round. It is the only garden Radish that is really pink in colour, the two preceding kinds being more of a carmine-red; but in this variety the upper part of the root is a true bright pink, which makes a pleasing contrast with the white of the lower part. The root of this Radish swells more speedily than that of any other variety, but it also quickly becomes hollow at the centre, and should be pulled for use as soon as it is fully grown. It grows really well only in compost or leaf-mould, and is sometimes fit for use in from sixteen to eighteen days after sowing. The market-gardeners about Paris grow it in preference to all other kinds for an early crop.

Scarlet White-tipped Turnip Radish.

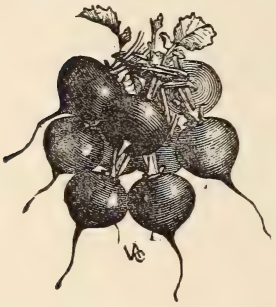


Forcing Scarlet White-tipped Turnip Radish.

Forcing Scarlet White-tipped Turnip Radish.—Still earlier than the preceding one, it differs from it mostly by its leaves, which are extremely short and light. It is admirably suited for

raising an early crop, and succeeds much better on spent manure than in garden soil.

Early Scarlet Globe Radish.—Introduced from America a good many years ago, it forms rapidly small uniformly bright red roots. The leaves are small, like those of the other forcing Radishes, and the root, although not so long as in the olive-shaped sorts, is not as round as in the turnip varieties, and would be as correctly described as oval as globe.



Early Deep Scarlet Turnip Radish.

Blood-red Turnip Radish.—A hardy Radish with globe-shaped roots of peculiar brown-red colour, and white, firm flesh; it requires less care, when grown in the open ground, than the other early sorts, and keeps longer without becoming pithy. In ordinary conditions it is fit for use twenty-eight to thirty days after sowing.

Early Deep Scarlet Turnip Radish.—A very handsome variety. Root very round, or slightly flattened, and of an exceedingly bright colour; flesh white, firm, crisp, and very pleasant to the taste; leaves of a somewhat lighter green than those of the pink-skinned Radishes. This variety is often fit for use in about twenty days after sowing. It grows well in ordinary garden soil, and still better in compost or leaf-mould.

Forcing Deep Scarlet Turnip Radish.—A handsome small variety, remarkable for its bright colour and for its small leaves. An early forcing Radish, it is fit for the market within fifteen to twenty days from sowing time, according to circumstances.

Forcing Deep Scarlet Turnip Radish.

Forcing Deep Scarlet White-tipped Turnip Radish.—This variety is very like other small Radishes for forcing in the smallness of its leaves and the rapidity with which the root is formed. It is one of the most grown sorts for early crops.

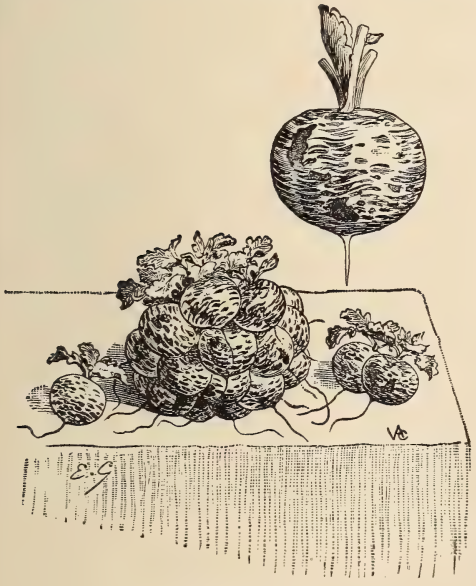
Forcing Bright Red Leafless Radish.—Root ovoid, bright carmine, of excellent quality. A very early variety, and well adapted

for forcing ; remarkable also for its scant foliage, often confined to the two cotyledons and two additional small, short, and rough leaves. This, with its great earliness, makes it apt for growing under glass. It seldom seeds.

Forcing Bright Red Leafless Radish.

Triumph Radish.—In general characteristics it belongs to the forcing turnip-rooted Radishes ; it has their globe-shaped root, small leaves, and their earliness. Its peculiarity consists in the scarlet streaks with which the white root is covered. On some roots either the red or the white colour predominates, but as a rule the stripes are distinct, and contrast agreeably with the uniform colouring of the other early Radishes.

White Turnip Radish.—A handsome variety. Root nearly round, flattened only when it attains a very large size ; leaves pretty large, erect, and light green. Although it is only two or three days later than the Early White Turnip Radish, this kind is more suitable for open-air culture than for forcing. The flesh is white, firm, and agreeably pungent.



Triumph Radish.

Small Early White Turnip Radish. — Root rounded, usually flattened above and underneath, often twice as broad as deep ; leaves short, rather spreading, very much cut or divided, somewhat gray, and tinged with brown on the veins and in the middle. In this variety the roots do not swell very quickly, as they take at least from twenty to

twenty-five days from the time of sowing before they are fit to be pulled for use. It is, however, employed for forcing, especially in northern countries. Even when quite small, this Radish is remarkably pungent, and its flavour is sometimes so strong as to be hardly endurable.

Small Early White Turnip Radish ($\frac{1}{3}$ natural size).

Early Purple Turnip Radish.—Root slightly top-shaped, of a fine clear violet colour; flesh white, almost transparent; leaves rather large, cut, or divided, erect, and light green. The roots of this variety take about a month to swell, but they remain a long time without becoming hollow at the centre. It is a true "all-the-year-round" Radish.

White-tipped Purple Turnip Radish.—A handsome, small kind, with an almost spherical root, dark violet-colour around the neck, becoming paler towards the lower extremity, which is white. Leaf-stalks and veins of the leaves violet-coloured or brown; leaves rather scant. Like the Early White-tipped Scarlet Radish, this variety should be sown at intervals of about a fortnight, as it soon becomes hollow.

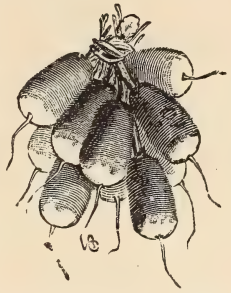
Very Early Yellow Turnip Radish.—Great numbers of yellow Radishes have during the past few years been recommended as sufficiently early to rank among the forcing Radishes, and none deserves better than this to be classed among such Radishes. The root is formed in summer within about twenty-five days; it is perfectly round, well shaped, and of a fine ochre-yellow. The leaves are short and few in comparison with the size of the root.

Olive-shaped Scarlet Radish ($\frac{1}{3}$ natural size).

B. Intermediate, or Olive-shaped, Varieties

Olive-shaped Scarlet Radish.—Root ovoid, slightly elongated, usually olive-shaped, sometimes almost cylindrical for a good part of its length, and rounded at both ends. In colour a very deep carmine; flesh white, firm, and crisp; leaves rounded, light green, rather broad,

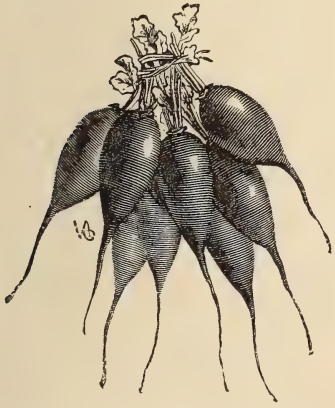
and not quite so large as those of the Scarlet Turnip Radish. This is one of the kinds which are most extensively grown in kitchen-gardens and for market supply. It grows well in the open ground, and remains some time without becoming hollow. The market-gardeners of Paris often try to raise it with the roots long and slender, rather than ovoid in shape, and they succeed in doing so by covering the beds with compost or leaf-mould as soon as the young plants are pretty well up.



French Breakfast Radish.

French Breakfast Radish.—Under this name two distinct varieties are grown, differing from each other not only in colour, but also in productiveness, etc. The *Parisian strain* is a very handsome variety, of the same shape as the preceding, or not quite so long; skin a florid and rather lively pink on the upper part—four-fifths—of the root, and white on the lower part. Like the White-tipped Scarlet Turnip Radish, this variety is exceedingly early; but the root very soon becomes hollow if it is not pulled as soon as it is fully formed. It grows much better in a hot-bed, or in compost or leaf-mould, than in ordinary garden soil.

The kind known as the *Southern strain* is rather thicker and longer in the root than the Parisian, and the pink colour is not quite so bright, and one-fourth of the root is white. The greater size of the white blotch of this variety distinguishes it sufficiently, and it has the advantage of being well suited for sowings during summer in the open ground, whereas the Parisian sort is a market-garden Radish.

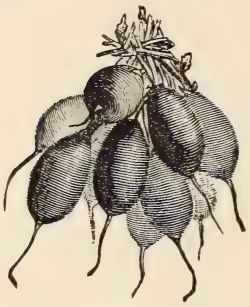


Deep Scarlet Intermediate Radish.

Forcing Olive-shaped Scarlet White-tipped Radish.—Root twice or thrice as long as thick, almost cylindrical, of a bright rose colour, ending in a fine tap-root which is white, as is also the end of the root. The leaves are not different from those of other forcing Radishes. It is one of the earliest, being, under average conditions, fit for pulling from fifteen to eighteen days after sowing.

Deep Scarlet Intermediate Radish.—This variety is as distinct in the colour of the skin as it is in the shape of the root, which is longer, and terminates in a longer and finer point than that of any other Intermediate variety. Leaves light green in colour, rather

large, and erect ; flesh very white, firm, crisp, very juicy, strong, and pungent. This is a fairly hardy kind, and very suitable for growing in the open air. The roots take about twenty-five days to swell, and do not become hollow too soon.



Early Deep Scarlet Olive-shaped Radish.

Early Deep Scarlet Olive-shaped Radish.—This is one of the handsomest and best of all the Small or Forcing Radishes. The root is regularly olive-shaped, very symmetrical, and very smooth ; flesh white and firm ; leaves short, stiff, and few for the size of the root. The plant grows well in the open air. The roots take about twenty to twenty-two days to swell. Its earliness and scanty foliage render it equally suitable for forcing. This variety is easily distinguished from the preceding one, by the roots being shorter and terminating more abruptly at the base, instead of gradually diminishing to a point. The flesh is tender, mild, cool, and hardly pungent.

Forcing Olive-shaped Deep Scarlet Short-leaf Radish.—A handsome very early kind, rooting as early as any of the turnip-shaped sorts. Olive-shaped root, tapering at the end, and showing a tendency to grow into a top shape. Leaves very small, erect, with stalk and veins tinged with copper colour. The root is generally sufficiently formed as soon as three leaves have developed, besides the cotyledons.

Olive-shaped Deep Scarlet White-tipped Radish. — An offspring of the French Breakfast Radish, selected by the Parisian market-gardeners until it is hardly possible to recognise its origin. It is now almost cylindrical in shape, and deep crimson, almost blood-red, in colour. Thus quite a distinct strain has been established, which, like the French Breakfast Radish, has also produced a *forcing* sub-variety, hereafter described.

Olive-shaped Deep Scarlet White-tipped Radish.

Forcing Olive-shaped Deep Scarlet White-tipped Radish.—One of the quickest to crop ; it is, on average conditions, fit to be pulled fifteen to eighteen days after sowing. Its colour is a very bright scarlet-red, contrasting vividly with the white blotch at the

extreme end of the root. It comes quite true from seed, has very scanty foliage, and is admirably suited for forcing.

Purple Olive-shaped Radish.—Root ovoid, almost pear-shaped, the thickest part being near the base. The upper half is of a black-violet colour, which gradually becomes paler until it passes into pure white at the extremity. The leaves are scanty, rather cut at the edges, and tinged with violet-brown on the stalks, veins, and sometimes on the blade of the leaf itself, giving the foliage a rather pleasing appearance. The flesh is white, hard, and strong flavoured. The roots take about a month to swell. This variety is especially suitable for open-air culture, but is also well adapted for forcing.

White Olive-shaped Radish.—When this variety is grown true to name, the root is very handsome, very regularly olive-shaped, and of a very fresh pure white colour; flesh very white and crisp, and not too pungent; leaves medium-sized, rather erect, and light green. This Radish may be grown equally well in a hot-bed and in the open air. The roots take about twenty-five days to swell. The colour forms a pleasing contrast to that of the other Intermediate varieties. It is not long since the variety was firmly established in the olive-shape represented in the accompanying illustration. Formerly it had the defect of being long in the lower part, almost like a Long Radish—a defect which, even yet, it sometimes has when the seed is not very pure.

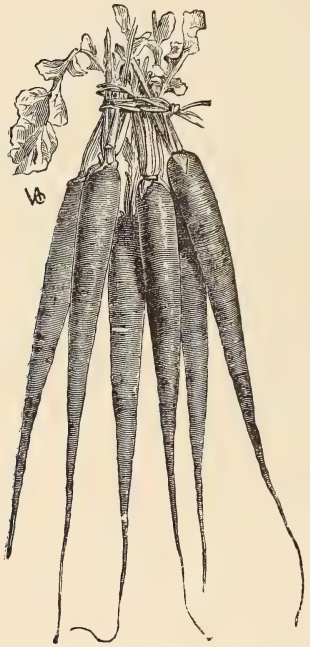
White Olive-shaped Radish.

Forcing White Olive-shaped Radish.—Root long, olive-shaped, thick from the top to about two-thirds of its length, then tapering abruptly and terminating in a thin tap-root. Ready for pulling in from fifteen to eighteen days. It is a perfectly white Radish, but, pulled a little late, the neck takes a greenish tinge. The leaves are rather larger than those of the other Forcing Radishes.

C. Long Radishes

Long Scarlet, or Salmon-coloured, Radish.—Root extremely long and slender, often 5 or 6 in. in length and only about $\frac{2}{5}$ in. in diameter, the upper part long, cone-shaped, narrowed towards the base of the leaves; skin smooth, and a vinous red colour; flesh almost transparent, and slightly tinged with pink or lilac. This

peculiar appearance of the flesh easily distinguishes the variety from all others which resemble it. This Radish is most usually grown in the open air in well-dug and well-manured soil. It is very seldom used for forcing, on account of the great length of the root, which would require too deep a layer of compost or leaf-mould. The roots take about a month to become fully formed. The flesh is tender, crisp, and fresh, but has not the pungent flavour of the Turnip Radishes or the Intermediate varieties.

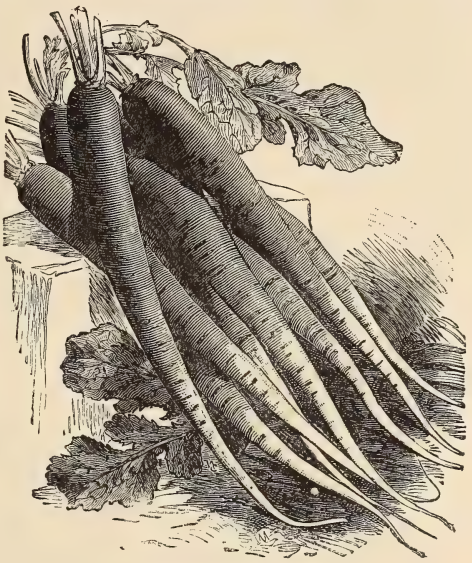


Long Scarlet, or Salmon-coloured, Radish ($\frac{1}{3}$ natural size).

Wood's Early Frame Radish.

Wood's Early Frame Radish.—This variety comes between the Long and the Intermediate kinds. The roots, which are of a very long ovoid shape, are usually from $2\frac{2}{5}$ to $2\frac{4}{5}$ in. long, and about $\frac{4}{5}$ in. broad in the thickest part, which is not far below the base of the leaf-stalks. The skin is a very lively carmine, becoming paler towards the lower end of the root. The flesh is very white, firm, juicy, very crisp, fresh, pleasant to the taste, and slightly pungent, like that of the Scarlet Intermediate Radish. The leaves are broad, rather short, compact, and rounded in shape, the stalks and veins tinged with coppery red. This Radish, which may also be very well grown in the open air, is almost always grown in

frames, especially in England. A layer of compost or leaf-mould 4 in. deep over the hot-bed is deep enough to grow it in. Of all the early Radishes it yields the heaviest crop in the same space of time. The roots take from twenty to twenty-two days to become fully formed.



Long Chartier Radish.

Long Chartier Radish.—A handsome variety, with long straight roots, regularly tapering, of a bright rose colour on the upper part, the lower portion much paler or even white. Culture and uses exactly the same as those of the Wood's Early Frame Radish.

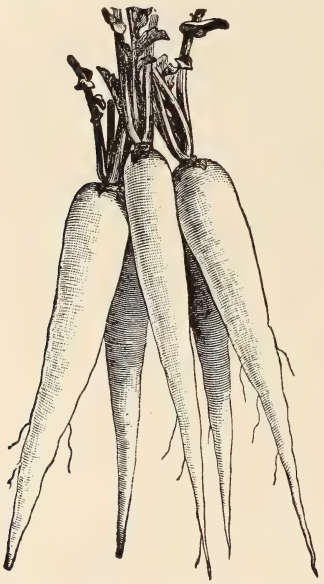
Brightest Scarlet, or Cardinal, White-tipped Radish. — Quite distinct, characterised by the very bright colour of its root, which is very nearly the colour of the Deep Scarlet Turnip-shaped and Intermediate Radishes. A very handsome summer Radish, fit for use about twenty-five days after sowing; suitable for the open ground and for being grown on spent manure. Flesh white, solid, and crisp.

Cardinal White-tipped Radish.

Long Purple Radish. — Root very long and slender, resembling that of the Long Scarlet Radish, with a long conical top, of an almost black-violet colour, becoming paler on the buried part; flesh almost transparent, lilac; leaves erect, rather long and broad, with brown stalks and veins. This variety is only grown in the open air. The roots take about a month to swell.

Long White Pearl Forcing Radish.—This variety comes very near the Long White Vienna Radish, described later, but is still earlier, and also rather shorter, with a thinner neck, and there is no green on the root. The root is a uniform milky white colour, almost transparent. The flesh is crisp, tender, and delicately pungent. It is a quick grower, doing best in mellow, rich, well-watered soil, with the aid of artificial heat during winter.

Long White Vienna Radish.—Root white, very smooth and clean skinned, straight, spindle-shaped, from 4 to nearly 5 in. long, and from ¾ to 1 in. broad at the top; neck short, rounded, tinged with green, and very narrow at the insertion of leaf-stalks; leaves rather large, broad, and light green. This is an early variety. The roots take four or five weeks to become fully formed; the flesh is very tender, crisp, and juicy. Amongst the Japanese varieties of Radishes, of which we shall have occasion to speak at the end of this article, there is one which, in its appearance, bears some resemblance to the present variety. It has long slender roots, which at first are quite under the surface of the soil, but afterwards the top of the root rises a little overground and becomes tinged with green at the neck. The flesh of this variety is very white, rather strong in flavour, and of very good quality.



Long White Vienna Radish.

Long White Naples Radish (Synonyms: White Transparent, or White Italian, Radish).—Root long and slender, pure white, resembling the Long Scarlet Radish in shape, but rather thicker; the upper part is conically tapered and tinged with pale green. This variety is almost always grown in the open air. The roots take about a month to become fully formed. A sub-variety of it is sometimes met with, in which the neck of the root is tinged with violet, but in every other respect it is exactly the same as the common variety.

Long Normandy, or Marsh, Radish.—A very distinct long root, remarkable for its habit of protruding from the ground and becoming twisted like the Ox-horn Beet-root. The part of the root which remains underground is white, and the portion which is exposed to the light becomes violet. This Radish is usually sown in the open air, and the roots are pulled for use when they

are about $\frac{4}{5}$ in. in diameter and 4 in. in length; they are then very tender. They attain this size and condition in less than a month from the time of sowing, after which they rapidly increase in size, and become twisted and hollow at the centre.

White Crooked, or Mans Corkscrew, Radish.—An exceedingly distinct variety. Root very long, cylindrical in the upper part, over 1 in. in diameter, and frequently more than 1 ft. in length. About one-fourth or one-fifth of the root shows above-ground, and this part is a dull white, more or less tinged with pale green. The underground portion is pure white, seldom straight, but most usually twisted like a corkscrew, in consequence of which the root can rarely be pulled up without breaking and leaving a part in the ground. The flesh is white, not very compact, and pungent. The leaves are very broad, and the neck of the root often badly formed. The roots of this Radish should be pulled about six weeks after sowing, as, if left in the ground longer, they become only fit for feeding cattle.

Ardèche Field Radish.

The *Ardèche Field Radish*, which is grown in the south of France more for feeding cattle than for table use, has some resemblance to the present variety. Like it, it is a very long-rooted and rather late Radish, and yields a heavier crop of leaves than of roots. It is therefore unsuited for garden culture, and the same may be said in regard to the improved form of this Field Radish, the roots of which are rather larger than those of the original variety.

II. Summer and Autumn Radishes

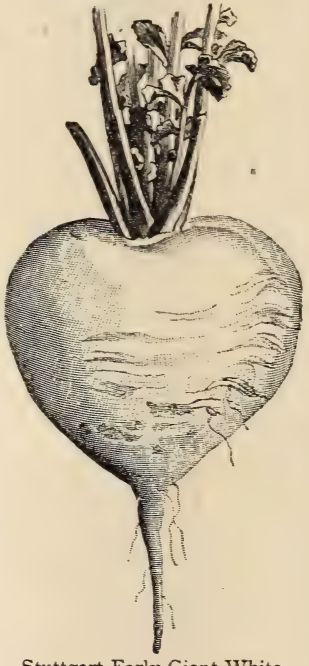
Radis d'été ou d'automne.

Under this name are grouped certain varieties, the roots of which are larger than those of the preceding section, and longer to

form, but grow nevertheless pretty rapidly, so that, by making successional sowings, a continuous supply of fresh tender Radishes may be kept up all through the summer and autumn. These varieties do not usually keep long. They are sown in drills, from 16 to 20 in. apart, and the seedlings are thinned out to a distance of from 6 to 8 in. from one another, according to the size of the variety sown. They require no attention except occasional waterings. The roots of most of the varieties are fully formed in from six weeks to two months from the time of sowing. Sowings may be made from March until August.

Large White Summer Turnip Radish ($\frac{1}{3}$ natural size).

Large White Summer Turnip Radish.—Root rounded or top-shaped, 2 in. or more in diameter and length when well grown; skin white; flesh white, rather tender, and slightly pungent; leaves rather long, broad, half-erect, much more abundant and larger than those of the Small or Forcing Radishes, especially exceeding them in the size of the midribs or stalks, which form a rather broad neck at their junction with the root. The roots of this variety form pretty soon, and are generally fit for use in from thirty-five to forty days after sowing. In the United States they grow under the name of the Early White Box Radish, or Philadelphia White Box Radish, a Radish very similar to it, but smaller, and possibly a link between the White Turnip-rooted Radish and the one just described above.



Stuttgart Early Giant White Turnip Radish ($\frac{1}{3}$ natural size).

Stuttgart Early Giant White Turnip Radish.—A larger variety and somewhat more flattened in shape than the preceding one. It is regularly top-shaped, and often 3 or 4 in. in diameter, and over 3 in. in depth.

Skin and flesh white; leaves somewhat broader and stiffer than those of the preceding variety, but not so erect. The roots may be pulled for use about six weeks after sowing, although they will continue to increase in size for some time longer without deteriorating in quality. When they have attained their full size, they are too large to be served up entire, and are cut into slices like the winter Radishes.

Yellow Summer Turnip Radish
($\frac{1}{3}$ natural size).

Yellow Summer Turnip Radish. — Root almost spherical or top-shaped, sometimes longer than broad, fit for use when about $1\frac{3}{5}$ in. in diameter, but often hollow when it exceeds that size; skin dark or grayish yellow, veined lengthways with small white lines produced by fine longitudinal cracks; flesh white, compact, and very pungent; leaves broad and long. This Radish grows rather rapidly, the roots being fit for use in about five weeks after sowing. With the exception of the Black Spanish Radish, no other variety, perhaps, has so strong a flavour. The flavour of the flesh is not, however, always invariable in any variety of Radish, and the conditions of soil and climate have a very great influence in increasing or diminishing its pungency.

Golden-yellow Summer Turnip Radish.

Golden-yellow Summer Turnip Radish. —An earlier variety, better shaped than the preceding. Is usually classed among the forcing or monthly varieties, but though early it is seldom fit for use within a month, and it is undoubtedly a summer Radish. The root is a fine yellow, spherical or slightly top-shaped, with few and small-sized leaves.

Early Golden-yellow Oval Summer Radish.—A quick-growing kind, distinguished for being a fine yellow colour, and usually oval-shaped. In quality the same as the last described sorts.

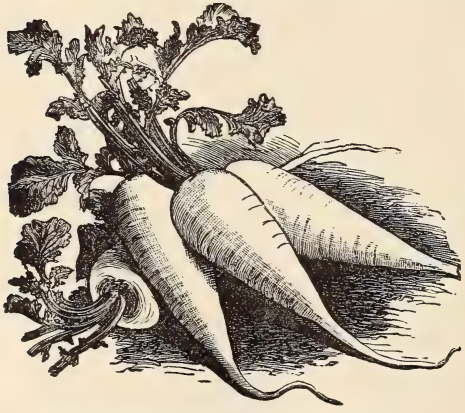
Gray Summer Turnip Radish.—Root almost spherical or top-shaped. Except in colour it is very like the Yellow Summer Turnip Radish, being of the same size, equally early, and having the skin cracked in the same way.

Small Black Summer Turnip Radish.—A variety which comes pretty near the preceding one, but more deeply coloured, and from eight to ten days later. The skin is black, cracked and furrowed with white lines. The flesh is very white and firm, and pungent.

Early Golden-yellow Oval Radish.

White Strasburg, or White Hospital, Summer Radish.—An early and, at the same time, very productive variety. Root pointed, from 4 to nearly 5 in. long, and 2 in. or less in diameter; skin white; flesh white, rather tender, and not too pungent; leaves large, broad, half-erect, deeply lobed, and of a light green. The roots may be pulled about six weeks after sowing, at which time they are two-thirds of their full size. They will continue to increase in size for a month or more without spoiling.

Black Long Summer Radish.—Evidently derived from the Black Long Winter Radish, and therefore properly a winter Radish;



White Strasburg Radish ($\frac{1}{3}$ natural size).

Black Long Summer Radish.

but we class it among the summer kinds not only because of its being readily grown in summer, but also because it forms a link between the two groups. Its root is smoother, more cylindrical

and less pointed than that of the Long Black Spanish Radish, its leaves fewer, and its flavour milder and less pungent. It is a favourite of the Paris market-gardeners, because it enables them to bring out black Radishes in July, when formerly there were none before October, plants from early sowings being liable to run to seed. Lovers of pungent Radishes will prefer the old Black Spanish Radish for autumn and winter use.

III. Winter Radishes

French, Radis d'hiver. *German*, Winter-Rettig. *Flemish* and *Dutch*, Rammenas. *Spanish*, Rabano.

The name of Winter Radishes is applied to those kinds which have such compact and firm-fleshed roots that they will keep through a great part of the winter without sprouting or becoming hollow. They are usually large and take several months in attaining their full growth. The seed is sown in May or June (that of some varieties up to the beginning of August), usually in drills

Black Spanish Winter Turnip Radish
($\frac{1}{5}$ natural size).

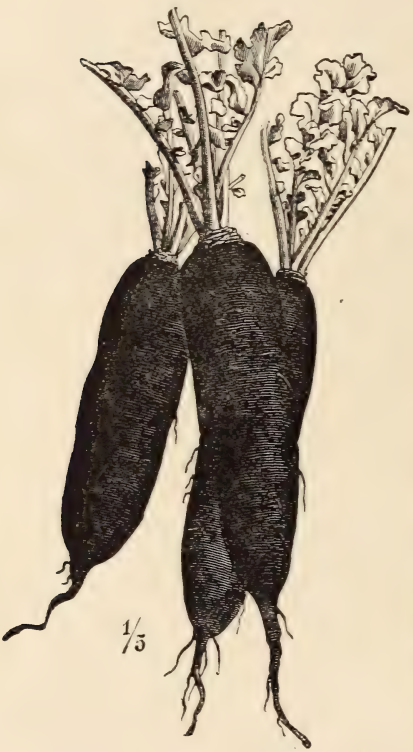
Large Purple Winter Radish
($\frac{1}{5}$ natural size).

from 16 to 20 in. apart. The roots are pulled in November, and will keep to a more or less advanced part of the winter, simply stored in a dry cellar or a vegetable house.

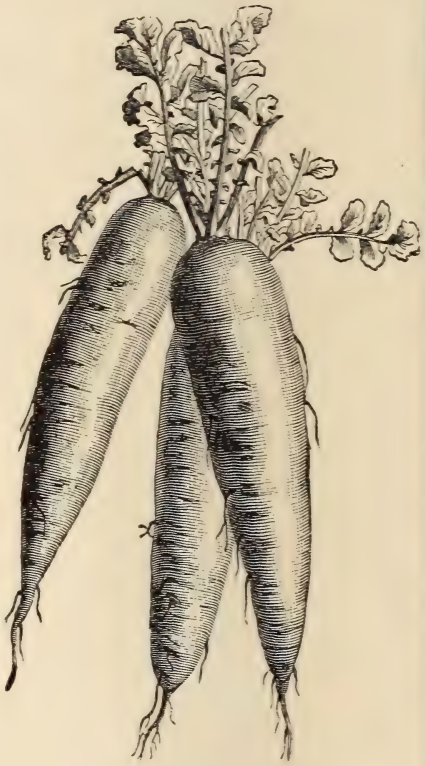
Black Spanish Winter Turnip Radish.—Root rounded, often top-shaped, 3 or 4 in. in diameter, and about 3 in. long; skin black, cracked in longitudinal lines; flesh white, very compact, and firm; leaves rather broad, very deeply cut into numerous lobes. This is not a very late kind for a Winter Radish: the seed may be

sown up to the end of July. The roots keep well, and are the strongest in flavour of all varieties of Turnip Radish.

Large Purple Winter Radish.—Under the name of Large Purple Winter Radish, a sub-variety of the Black Spanish Winter Turnip Radish is grown. It is much the same in shape, size, and earliness, but is distinguished for its purple skin.



Long Black Spanish Winter Radish
(⅓ natural size).



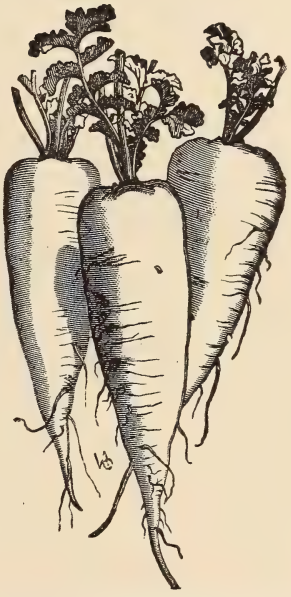
Laon Long Gray Winter Radish
(⅓ natural size).

Long Black Spanish Winter Radish.—Root cylindrical, very regular, from about 7 to 10 in. long, and between 2 and 3 in. in diameter; skin very black, and somewhat wrinkled; flesh white, firm, and compact; leaves stout, broad, and long. Two forms of this variety are in cultivation—one with the root rounded and shortened off at the lower extremity; the other with the root tapering to a long point. The second is somewhat later, and the flesh is very pungent. The first is much more clean skinned, and often quite mild in flavour.

The *Laon Long Gray Winter Radish* and the *Gournay Large Purple White Radish* are very closely related to the Long Black Spanish Winter Radish, which they resemble in the size and shape, being only a little thicker; they differ from it in their colour, the *Laon* variety being iron gray, and the *Gournay* purple. Both are grown and used in the same way as the Black Spanish Winter Radish.

Large White Spanish Winter Radish.—Root spindle-shaped, nearly cylindrical in the upper two-thirds of its length, and

Gournay Large Purple Winter Radish ($\frac{1}{5}$ natural size).

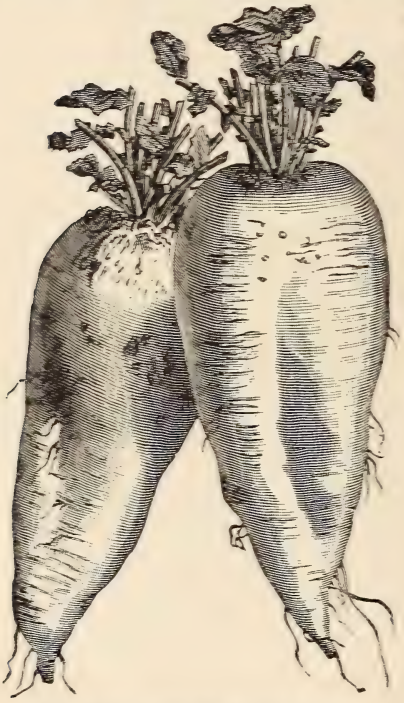


Large White Spanish Winter Radish ($\frac{1}{5}$ natural size).

narrowed to a point in the lower part, 6 or 7 in. long, and nearly 3 in. in diameter; neck rounded; skin white; flesh white, compact, and very strong in flavour; leaves very broad. This is a good Winter Radish, and keeps well. It grows so quickly, however, that it may be cultivated as a Summer or Autumn Radish, the seed being sown in June.

Large White Russian Winter Radish.—Root long, ovoid in shape, often from 12 to 14 in. long, and 5 or 6 in. in diameter; skin rather wrinkled, and grayish white; flesh white, not very

compact, and rather strong in flavour; leaves numerous, rather broad, very much divided, and forming very dense rosettes spreading on the ground. This is a very productive Radish, but for table use the roots should be pulled before they are fully grown. In order to keep them well in winter, the seed should be sown in the end of June or in July. If sown earlier, the roots often become hollow, and are then only fit for feeding cattle, for which purpose the large Winter Radishes, and especially the present variety, might be more largely used than they are. In the same space of time they produce in leaves and roots a greater quantity of cattle-feeding material than Turnips, and, from the large size of the seed, young Radish-plants are from their earliest growth more vigorous than young Turnip-plants, and suffer far less from the attacks of insects.



Large White Russian Winter Radish.

Chinese Scarlet Winter Radish (¼ natural size).

Chinese Scarlet Winter Radish.—A very distinct variety. Root long, thicker at the lower extremity than at the neck, blunt at both ends, and very like the Jersey Turnip in shape; skin very bright red, marked with some small semicircular white lines halfway round the root; flesh white, very firm and compact, pungent and sometimes slightly bitter; leaves rather broad, divided, and

spreading ; leaf-stalks bright pink. The roots are of medium size, usually 4 or 5 in. long, about 2 in. in diameter at the thickest part of the lower extremity, and about $1\frac{3}{5}$ in. below the neck. This variety is chiefly grown for autumn and winter use. It may be sown up to August, and much thicker than the other Winter Radishes. There is a pure white sub-variety of this Radish, and also a violet-coloured one, both of which only differ in colour from the present variety. If we had to admit that any variety of cultivated Radishes is derived from the Wild Radish (*Raphanus Raphanistrum*), the present variety is the one of all others to which we should be disposed to assign that origin ; its leaves, root, and other characteristics presenting an appearance entirely distinct from any other cultivated kind.

Deep Scarlet Pamir Turnip Radish.

Deep Scarlet Pamir Turnip Radish.—Resembles in colour the Scarlet Chinese Radish, but differs in shape, being almost spherical. The flesh is white, firm, and pungent ; the skin bright scarlet. It keeps quite well up to mid-winter without becoming pithy, or starting into vegetation.

Californian, or **Mammoth White, Winter Radish.**—This Radish is even more like the Jersey Turnip than the Chinese Scarlet Winter Radish, being similar in shape and in colour. The root is pure white, long, cylindrical, and thickest at the lower end ; it is from 6 to 8 in. long, about $2\frac{1}{4}$ in. in diameter at the thickest part, and about 2 in. for the remainder of its length, and projecting between 1 and 2 in. above the ground. The leaves are large, broad, and a very light green. It is productive, and a good autumn or winter radish. The roots take two or three months to form ; the flesh is mild, and not pungent.

The Japanese cultivate a great many kinds of Long White Radishes for table use. Some of these are said to produce roots of the almost fabulous weight of from 33 to 44 lb. each. When grown in Europe, most of these Japanese Radishes run to seed very rapidly, and are not of much value. An exception, however, is the variety they call *Ninengo daïkon*, which is remarkable both

for the length and symmetry of its root and for its slowness in running to seed. The root is white, cylindrical, blunt, sometimes thick at the lower end, and often 16 to 20 in. long, and 3 to 4 in. in diameter. The leaves are large, very long, divided into a very great number of almost triangular lobes, and very dark green; they spread upon the ground, forming a broad flat rosette. To be grown to perfection it should he sown in April, and the soil very deeply dug and plentifully manured.

Other Varieties

White Chinese, or Celestial, Radish.—Root white, cylindrical, very large, flesh very white and rather mild flavoured.

Radis Blanc Demi-long de la Meurthe et de la Meuse.—A white Summer Radish, almost always pear- or top-shaped, but of unequal length. It grows to a pretty large size, but is usually pulled for use when half-grown, being then about the size of a hen's egg. The flesh is white, firm, and rather pungent.

R. Früher Zwei-Monat.—A late variety of the White Olive-shaped Radish, it is intermediate between the Summer Radishes and the Small or Forcing Radishes.

R. Gris d'Eté Oblong.—A pear-shaped or ovoid form of the Gray Summer Turnip Radish, but not so regular in shape and not superior to it in any way. The flesh is somewhat more pungent.

R. Gros d'Hiver de Ham (*R. Gros Gris d'Août*).—A true Winter Radish. Root long, cylindrical, ending in a blunt point, and about the size of the Long Black Winter Radish, but grayish white. It resembles the Laon Gray Winter Radish. It is called *Gris d'Août* because the roots are generally first pulled in August, but it is more of an Autumn or Winter Radish.

R. de Mahon.—An exceedingly distinct kind, peculiar to the Balearic Islands and some districts in the South of France. It is a Long Red Radish, the root being often angular (especially when it grows to a large size), and projecting from the ground for one-half or two-thirds of its length, like the Mangel-Wurzel. Its growth is remarkably rapid. The leaves are broad and stout. The flesh is pinkish white, very juicy, firm, and solid while young. The root does not grow hollow until it has attained the size of a small Beet-root.

R. Rond Rouge Foncé.—This is a particular variety of small Turnip Radish, which has a very dark, almost violet-coloured skin. It is rather in repute in the southern provinces of France, where it is said to resist the heat better than the Common Scarlet Turnip Radish.

RAT-TAILED RADISH

Raphanus caudatus, L.

Radis serpent.

Native of South Asia.—Annual.—The edible part of this Radish is not the root, but the silique or seed-vessel, which is gathered before it is fully grown. This, instead of being short and thick, as in other Radishes, is often twisted, scarcely as thick as a lead-pencil, and often 8 to 10 in. long. It is frequently violet-coloured, and somewhat pungent, like that of the Small or Forcing Radishes.

CULTURE.—This plant is extremely easy to grow. The seed is sown in May, where the plants are to stand, in a warm position if possible, and in about three months the plants commence to flower and yield pods or seed-vessels.

USES.—The fresh pods are eaten raw, or they may be pickled in vinegar.

In warm countries another kind of Radish, named the *Madras Radish*, is sometimes grown for its pods, which are used like those of the Rat-tailed Radish. They are almost the same shape as the pods of the common kinds of Radish, but far more fleshy and tender.

RAMPION

Campanula Rapunculus, L. *Campanulaceæ.*

French, Raiponce. *German*, Rapunzel-Rübe. *Flemish* and *Dutch*, Rapunsel. *Italian*, Raperonzolo. *Spanish*, Reponche. *Portuguese*, Rapunculo.

Native of Europe.—Biennial.—Root white, spindle-shaped, and nearly ½ in. in diameter for 2 in. or more of its length; flesh white, very firm, but crisp; leaves sessile, rather numerous, long oval-spathulate, narrowed at the base, something like those of the Common Corn-salad, but more slender and a lighter green; flower-stems slender, hard, somewhat angular, sometimes branching, and bearing a few linear leaves; flowers lilac, bell-shaped, with five sharp-pointed divisions, and borne in long spikes; seed-vessels small, top-shaped, surmounted by the five teeth of the calyx; seeds oblong, flattened, light brown, and exceedingly small. They are the smallest of all kitchen-garden seeds. Their germinating power lasts for five years.

Rampion (⅓ natural size).

CULTURE.—The seed is sown in the open ground early in May, either broadcast or in drills from 8 to 10 in. apart. As it is extremely small, it is a good plan to mix it with a little fine soil or sand, in order to avoid sowing too thick. The first waterings should be given carefully, so as not to wash away the seed, which should not be deeply buried, but merely pressed firmly into the soil. If the seedlings come up too thick, they should be thinned out, and they should be frequently watered in hot weather. As plants sown early in the season are apt to run to seed, it is advisable to make a fresh sowing in June, using the same precautions. The roots may commence to be gathered for use in October or November, and they will continue to yield a supply through the winter; and in order that this may not be interrupted by severe frosty weather, a sufficient quantity of the roots should be taken up beforehand and stored in sand in a cellar or vegetable-house.

USES.—The roots and leaves are eaten raw as salad.

RHUBARB

Rheum, L. *Polygonaceæ.*

French, Rhubarbe. *German*, Rhabarber. *Flemish* and *Dutch*, Rabarber. *Danish*, Rhabarber. *Italian*, Rabarbaro. *Spanish* and *Portuguese*, Ruibarbo.

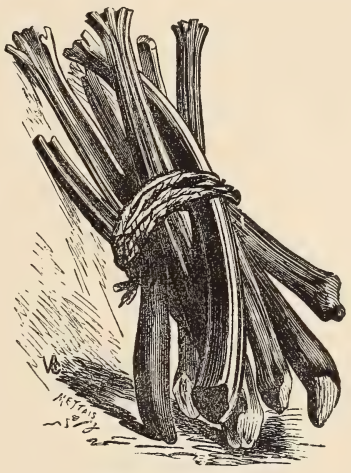
The cultivated varieties of Rhubarb are generally referred by botanists to *Rheum hybridum*, Ait., a native of Mongolia. These varieties, however, are far from exhibiting any constant characteristics, and it is not impossible that some of them may have sprung, either directly or as the result of crossing, from the *Rheum undulatum* of North America, or even from other species.

Rhubarb (*Rheum hybridum*) ($\frac{1}{20}$ natural size).

The plant, as it is grown in gardens, is remarkable for its very large heart-shaped radical leaves, which measure over $2\frac{1}{2}$ ft. in length and 2 ft. or more in breadth, and are borne on stalks which are rounded underneath and flat or channelled on the upper surface, about 2 in. in diameter, and from 1 ft. to 16 in. in length—dimensions which

by special culture may be increased to nearly double the size. The flowering stems are large, cylindrical, hollow, and furrowed, and bear small, short, erect branches, covered with small greenish flowers, which are succeeded by triangular seeds with a membranous wing on each of the angles. The germinating power of the seeds lasts for three years.

CULTURE.—Rhubarb may be propagated from seed ; but as, in this case, the plants are liable to exhibit much diversity in their habit of growth, the more common practice is to divide the root-stock of the plants which produce the thickest and longest stalks. The roots so divided are planted at the end of winter in good, moist, deep, very mellow, and well-manured soil, and about a yard apart in every direction. The stalks are not pulled for use until the spring of the year following that in which the roots were planted, and the same plants will continue to yield for four years at least, and sometimes for ten years or longer without the plantation requiring to be renewed. The only attention necessary is to keep the ground free from weeds, and to apply a good dressing of manure every two or three years. In order to increase the length of the stalks, a large bottomless flower-pot, a chimney-pot, or a small barrel with the ends knocked out, is sometimes placed over each plant in spring when the leaves are starting into growth. Striving to reach the light, the leaves naturally grow longer and the stalks at the same time become longer and more tender. The flowering-stems, which would otherwise exhaust the plants, should be cut off as they make their appearance. To force Rhubarb, the roots should be taken up with a ball and planted in a hot-house or a hot-bed.



Stalks (⅛ natural size).

The cultivation of this plant, as yet unpractised on the Continent, as far as we know, is of much importance in Great Britain and North America. Rhubarb will grow in many kinds of soil; but the richer and deeper it is, the finer will be the quality and size. The situation should also be moderately dry, or made so by drainage. It will grow in clay, peat, or the bog-earth of the Fens. We have seen it succeed remarkably well in mud cleaned out from a river. When the leaves get fairly into growth, they need plenty of food to keep them growing. The larger the leaves of one season the stronger will be the crown for

the next; hence the importance of rich feeding all through the growing season. It is a good plan, in small gardens, to plant Rhubarb near the depot for house sewage, so that it may be nourished with this as well as solid manure; 4 ft., at least, of a rich root-run should be provided for it. For new plantations the ground should be thoroughly trenched and manured. Its productive force should be kept up afterwards by an annual dressing, from 2 to 3 in. in thickness.

No plant is more easily increased and multiplied than Rhubarb; plants two or more years old seed freely if permitted to do so. Unless seed be required, however, they should not be allowed to do so, as seed-bearing weakens the crowns. The seeds ripen about the end of September, and may be sown at once in shallow drills a yard apart, or they may be sown in February. As soon as they are well up, thin the plants to 18 in. or 2 ft. asunder, according to the size of the kind and the intention of the cultivator. If intended to remain where they are, a yard apart is close enough—indeed, too close for some varieties. Some, however, prefer rows 2 ft. apart, and thinning the plants to 1 ft. only the first season: then in the October or February following fresh ground is prepared, and the Victoria transplanted at distances of from 4 to 6 ft. by 4 ft., and the Defiance 3 ft. by 18 in. or 2 ft. The best plan is to sow Rhubarb where it is to remain, as it forms immense roots that are easily broken,—and to break it is to injure it more or less. Nevertheless, a very common mode of propagating Rhubarb is by root division. The huge stool or fleshy root is sliced into as many portions as there are crowns to it with a sharp knife or spade, and each slice forms a new plant.

Gathering Rhubarb, and when to cease gathering, are matters which require more attention than they generally receive. In gathering, the proper method is to give the leaf-stalk a twist outward, and a sudden jerk down at the same moment. From want of attention to this, many tear off the crown with the base of the leaf-stalk. Again, too many leaves should not be gathered at once. If a plant have only a dozen leaves, do not gather more than six of them, and let these be the lowest. Some prefer Rhubarb when the leaves are freshly unrolled, others when they are half-grown, and others when they are fully grown. Of course there is great waste if the stalks be gathered before they have reached their full length. Rhubarb is at its best just when the leaf has reached full size. It can hardly be too old for preserving, and is seldom gathered till the end of August for that purpose. As to the time of ceasing to gather Rhubarb, it should certainly be not later than August if the gathering is to be annual: this leaves but little time for the last leaves to ripen good crowns for the next year's crop. All the leaves removed have doubtless been a loss to the plant: they did much to weaken and nothing to strengthen it; it is only the leaves left on that recoup it for its loss in those taken off. Hence the importance of rich food to replenish the plant, and time for the maturation of the later growth; and it need hardly be said that no weed must be permitted to grow at the expense of the Rhubarb-plants.

There are various ways of forcing this useful plant, which may briefly be divided into two distinct methods, No. 1 consisting of lifting the roots and placing them in arti-

ficially heated structures; or No. 2, by covering the crowns where they are grown with pots or boxes, and applying fermenting material, composed of stable litter, leaves, etc., or, in fact, anything that will generate warmth enough to excite growth. There is much to be said in favour of both systems, for they are both good under certain conditions, and gardeners in private gardens, as a rule, find lifting the roots and placing them in heat the best plan for the earliest crops during December and January; for where heated glass structures are in use, a supply of Rhubarb may be procured without any additional outlay, or even occupying any space useful for any other purpose, as under stages, or in the boiler-shed, or, in fact, any position near the hot pipes. The roots may be placed on the floor, or in pots or boxes, and covered with soil, keeping it moist, and the crowns may be covered with hay, fern fronds, or litter, to blanch it. The only objection to this plan is that it weakens the crowns more than by forcing them in the ground, as the roots get very much mutilated in removal, so that if the quantity of Rhubarb roots is limited, it is preferable to adopt the plan of forcing the roots where they are grown. Procure the requisite number of pots with movable covers, and place them over the crowns; then cover them over with fresh stable litter, or a coating of leaves and litter mixed together. The leaves of deciduous trees are most useful for many purposes, as they can be used for forwarding crops of Rhubarb and then placed in pits or frames for supplying bottom heat for Cucumbers and other early crops. To have Rhubarb fit for use at Christmas, cover the crowns in the middle of November, and as soon as the first batch gets fairly started into growth, cover a few more pots in succession, until it comes on naturally in March, when any large tubs or boxes turned over the crowns to shelter from cold winds will forward the growth at least a fortnight before the crowns left uncovered. Rhubarb, unlike many other crops, is better when forced than from the open air, being more tender and succulent.

Market-Garden Culture. — Rhubarb forcing in market-gardens is very simple, and is done in hot-beds covered with hoops and mats. In making young plantations, the sets are sometimes planted about 18 in. apart each way: and, at forcing time, every other row, and the alternate plants in the row left, are lifted for forcing; old plantations, too, are cleared entirely for forcing. The leaves will be decayed enough to be raked off by the middle of October, by which time the first portion is usually lifted for forcing. For this purpose trenches are cast out, about 4 ft. wide and 2 ft. deep, and filled with fermenting manure. Over this a thin layer of common soil is placed, and in it the crowns, after being trimmed of some of their rougher roots, are planted. Over the crowns some loose litter is strewed, and then the beds are hooped over and covered with mats, over which another layer of straw or litter is placed during winter. In the outside covering, apertures are made at gathering time, and closed again when done. In February, if the weather be mild, the hoops and mats are commonly dispensed with. In some gardens excellent Rhubarb is produced in pits, with some heating material underneath, and some loose straw merely shaken loosely over the

roots. Some force Rhubarb in fruit-houses; the roots are packed closely together on the floors, a little leaf-mould or other soil is cast over them, and they are afterwards covered with mats, which remain on them until the stalks are fit to gather. Rhubarb forced in this way is not so good in colour as that produced in darker places, and which we see in the markets early in the season; but it is greatly superior to it in flavour.

Whole fields in Surrey are devoted to Rhubarb culture, but the bulk of it from London market-gardens is grown under fruit-trees—positions in which it grows well. In spring, when the produce is most wanted, the trees are leafless, and therefore they do not shade it much, but afford slight protection, and the produce comes naturally fit for use about a week sooner than from the open field. In making permanent plantations, divisions of the old stools are used, and they are planted in rows 2½ or 3 ft. apart, and from 2 to 2½ ft. asunder in the rows. No leaves are cut away from them the first year, but the space between the lines is planted with Lettuces or Coleworts. During the second season many stalks are not cut, but in the third year a fair crop is gathered. As soon as time can be spared in winter, and before the leaves begin to grow, the ground between the rows is dug over roughly, and a large forkful of rank litter placed over each crown. Under the litter the stalks come up clean, tender, and crisp—very much more so than if none were used.

USES.—The fleshy stalks are used for making tarts, pies, and preserves, especially in England and America.

The following are the principal varieties which are considered to be derived from *Rheum hybridum*:

Early Red Tobolsk Rhubarb.—A very early spring variety, and the best for forcing. Leaves rather small, heart-shaped, with short, blunt point, broadly waved at the edges, very glossy, and clear green. Stalks short in length, about two-thirds of the blade, smooth, and all red. Flowers abundantly, the flower-stalks green, thin, with erect branches.

Hybrid Florentin.—A cross between *Rheum officinale* and *Rheum Colinianum*, remarkable for the great size of its leaves, often 3 ft. in length, as also its floral stalks, usually from 6 to 9 ft. high, and covered during summer with innumerable dark red flowers. Recommendable for its hardiness and the thickness of its leaf-stalks, which are round and without grooves, tinged red at the base, and blotched red for the rest. Not only a valuable vegetable, but also a highly ornamental plant.

Hawke's Champagne.—This has now become the favourite sort in the London market-gardens. Comes early into use. Stalks of a deep crimson colour, large, and of fine quality; leaves deep green, slightly pubescent, the younger ones having an almost heavy appearance.

Mitchell's Royal Albert (*Early Red*).—A very early variety, with thick long stalks of excellent flavour, equal in length (when

not drawn) to three-fourths of the length of the blade of the leaf, plentifully spotted with red over their entire surface, and more angular than channelled. Leaves heart-shaped, broad, with blister-like swellings on the upper surface, but not much crumpled; blade of the leaf light green and smooth. This variety flowers abundantly, and has a very thick, smooth, and very branching flower-stem, of a uniform green colour.

Myatt's Linnæus.—A second-early sort, resembling Royal Albert, but a much larger and stronger grower. Stalks deep green, rounded, good in quality.

Myatt's Victoria. — A later kind than Royal Albert. Stalks red, very thick, considerably longer than the blade of the leaf, channelled underneath, and of good quality; leaves broader than long, heart-shaped or rounded, pointless, very wavy at the edges, very much crumpled, and a rather dark and glaucous green. This variety flowers very scantily.

Stott's Monarch.—A giant variety, greatly recommended by some for its fine quality, and excellent for preserving. Leaves heart-shaped, over 3 ft. long, and nearly the same in breadth, with a dark green, even-surfaced blade; stalks exceedingly thick, scarcely half the length of the blade, but 3 or 4 in. broad, and of a somewhat bronzy green colour. Flowers very seldom.*

The *Rheum undulatum* of North America is sometimes cultivated as a vegetable. This is a distinct and early species, and not so acid as other kinds. The leaves are light green colour, very wavy at the edges, rather long, heart shape, but almost blunt; stalks slender, about as long as the blade of the leaf, smooth, and green, except at the base, which is tinged with red; flower-stems very numerous, a uniform pale green, and with erect branches.

The other cultivated kinds of Rhubarb are grown for ornament or for medicinal purposes, but are not suited for the kitchen-garden. A description of them will be found in "Les Fleurs de Pleine Terre." The finest of them are *Rheum officinale*, H. Bn.; *Rheum Emodi*, Wall.; and *Rheum palmatum*, L., with its variety, *Rheum p. Tanghuticum*.

ROCKET-SALAD

Eruca sativa, Lank.; *Brassica Eruca*, L. *Cruciferæ*.

French, Roquette. *German*, Rauke. *Flemish*, Krapkool. *Dutch*, Rakette kruid. *Italian*, Ricola, Ruchetta. *Spanish*, Jaramago. *Portuguese*, Pinchão.

Native of South Europe.—Annual.—A low-growing plant, with the radical leaves thick, oblong, and divided like the leaves of Radishes or Turnips into several segments, of which the terminal one is oval and much larger than the others. Stem erect, smooth,

* Daw's Champion, see p. 773.

and branching; flowers rather large, white, or yellow, veined with violet; seed-vessels cylindrical, with three not very prominent ribs on each side; seeds brown, smooth, and somewhat flattened. Their germinating power lasts for four years.

Rocket-salad (⅙ natural size).

CULTURE.—The seed is sown in the open ground from April to the end of summer, and in about six weeks or two months the leaves may commence to be cut. In spring or autumn fresh leaves are abundantly produced after cutting. In summer the plants run to seed rapidly. Frequent waterings are useful in keeping the leaves tender, and in modifying the flavour, which is very strong and somewhat like that of the Scurvy-grass. The young leaves are eaten as salad.

TURKISH ROCKET

Bunias orientalis, L. *Cruciferæ.*

Native of Western Asia, but naturalised in France.—Perennial.—A hardy and very long-lived plant, with numerous, entire, long leaves, in shape something like those of the Horse-radish. Stem about 3 ft. high, very much branched; flowers yellow, and like those of the Mustard-plant; seed-vessels hard, very short, like those of the Chick-pea, but smaller. Their germinating power lasts for three years.

CULTURE.—This plant is as easily grown as the Chicory. The seed is sown in drills in autumn or spring, and the plants will continue vigorous and productive for several years.

USES.—The young and tender leaves and shoots are eaten either boiled or as salad. This plant has been highly spoken of as a kitchen-garden plant. It commences to grow very early in spring, when other fresh green vegetables are scarce, resisting both cold weather and drought well.

ROSEMARY

Rosmarinus officinalis, L. *Labiatæ*

French, Romarin. *German*, Rosmarin. *Flemish* and *Dutch*, Rozemarijn. *Danish*, Rosmarin. *Italian*, Rosmarino. *Spanish*, Romero. *Portuguese*, Alecrim.

Native of South Europe.—Perennial.—An under-shrub, common on the calcareous hills of the south of France and in the vicinity of

the sea-coast. Stem branching, woody, with erect branches bearing an abundance of linear-obtuse leaves, of a lively green colour on the upper surface and silvery gray underneath; flowers axillary, forming long leafy clusters on the upper part of the stems, labiate, and of a gray-blue; seeds light brown, oval, with a large white *hilum* at one end. Their germinating power lasts for four years.

Rosemary ($\frac{1}{15}$ natural size; detached branch, $\frac{1}{3}$ natural size; detached flower, natural size).

CULTURE.—The Rosemary does not require any culture. Tufts of it planted in good, well-drained soil, and, if possible, at the foot of a south wall, or on a slope with a southern aspect, will continue productive for many years without requiring any attention.

USES.—The leaves are used for seasoning.

RUE

Ruta graveolens, L. *Rutaceæ.*

French, Rue. *German*, Raute. *Dutch*, Wijnruit. *Spanish*, Ruda.

Native of South Europe.—Perennial.—A plant growing from 16 in. to 2 ft. high and forming a small round bush. Stem woody, very much branched; leaves all stalked, twice or thrice divided, and winged; divisions almost triangular, or oval-obtuse; flowers large, with four yellow petals of a green colour, produced in short, corymbose, terminal clusters; seed-vessels rounded, four or five lobed; seeds black, crescent-shaped or kidney-shaped. Their germinating power lasts for two years.

CULTURE.—This plant is easily propagated in spring from seed, or from divisions of the tufts, which, as soon as they are well rooted, are planted out 20 in. apart in every direction in good and well-drained, rather than moist, soil, where they may live for many years without requiring any care. Cut the plants short every two or three years in order to promote the growth of young stems.

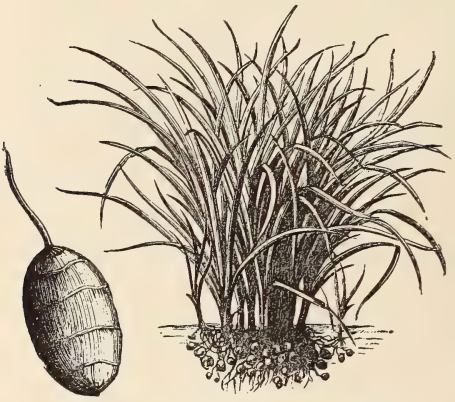
USES.—The leaves, which have an exceedingly strong odour, very disagreeable to most people, are sometimes used for seasoning. They are bitter and very pungent. In old cookery books Rue is frequently mentioned amongst the seasonings in common use.

RUSH-NUT, or CHUFA

Cyperus rotundus, L.; *C. esculentus*, Gouan. *Cyperaceæ.*

French, Souchet comestible. *German*, Erdmandel. *Flemish*, Aardmandel. *Italian*, Mandorla di terra. *Spanish*, Chufa.

Native of South Europe.—Perennial.—A plant forming tufts of stiff, pointed, almost triangular, leaves, like those of most plants of the *Cyperaceæ* family. Roots brown, very numerous, tangled, and intermixed with underground shoots, which are swollen into a kind of small, scaly, brown tubers, with white, floury, sweet flesh.



Rush-nut, or Chufa ($\frac{1}{10}$ natural size; detached nut, natural size).

CULTURE.—The plant is propagated in April or May, either from the tubers, or from divisions of the tufts. The divisions so planted increase in size, and spread very much during the summer, and the tubers or "nuts" are gathered in October or November. They may be easily kept all through the winter, if stored in a dry place, sheltered from frost, and in drying become sweeter and more agreeable to the taste than when eaten freshly gathered. The tubers are eaten raw or parched.

SAFFRON-PLANT

Crocus sativus, L. *Iridaceæ.*

French, Safran. *German*, Safranpflanze. *Italian*, Zafferano. *Spanish*, Azafran.

Native of the East.—Perennial.—A bulbous plant, with long, narrow leaves, like those of a Grass, glistening and dark green, with a white line running lengthways down the middle. Flowers violet, very long ovoid, and not much opened at the mouth; pistils extremely large, divided into numerous strips, and of a handsome orange or saffron colour. Their weight causes them to droop over the side of the flower, which produces a rather peculiar effect. The bulbs or corms are covered with brown, wrinkled coats.

CULTURE.—The Saffron-plant is not propagated from seed, although it occasionally bears some, but is always multiplied by means of the bulbs or corms. These are planted from June to August, in good, free, light soil, containing, if possible, a large

proportion of calcareous matter, and in a position well exposed to air and sunshine. The flowers bloom in September; they are gathered as soon as they open, and the pistils are picked off with the hand. The cultivation and preparation of Saffron require an enormous amount of manual labour, and, consequently, the plant is very little grown for economic purposes in gardens.

Saffron-plant ($\frac{1}{3}$ natural size).

USES.—The pistils, when dried, are used for flavouring and colouring certain dishes. Saffron, being expensive in proportion to its purity, is often adulterated with Turmeric, which is obtained by pulverising old roots of *Curcuma longa*, an East Indian plant of the *Zingiberaceæ* or Ginger family, and is of a deep yellow colour, with a slightly peppery and aromatic flavour.

SAGE

Salvia officinalis, L. *Labiatæ.*

French, Sauge officinale. ***German***, Edel-Salbei. ***Flemish*** and ***Dutch***, Salie. *Italian* and *Spanish*, Salvia. *Portuguese*, Molho.

Native of South Europe.—Perennial.—A plant with an almost woody stem, at least at the base, and forming broad tufts seldom more than 14 to 16 in. high. Leaves very pale green, oval, toothed, very finely reticulated, and wrinkled; lower leaves narrowed into a stalk, upper or stem-leaves narrow and long pointed; flowers in heads of three or four, in terminal clusters, usually bluish lilac, sometimes white or pink; seeds nearly spherical, and of a blackish brown colour. Their germinating power lasts for three years.

Sage ($\frac{1}{5}$ natural size).

CULTURE.—The Sage-plant is as easily grown as Thyme. The

seed is sown in spring or autumn, in rows or as edgings, which will last for many years without attention. Care should be taken, however, to have the plants in a well-drained and rather dry position, for the plant is a native of Southern Europe, and grows naturally on dry, calcareous hills. Nevertheless, it withstands our ordinary winters. The leaves are used for seasoning.

SALSAFY, or VEGETABLE OYSTER

Tragopogon porrifolius, L. *Compositæ.*

French, Salsifis. *German*, Haferwurzel. *Flemish*, Haverwortel. *Danish*, Havrerod. *Italian*, Barba di becco. *Spanish*, Salsifi blanco. *Portuguese*, Cercifi.

Native of Europe.—Biennial.—A plant with a long, fleshy taproot, 6 to 8 in. in length, and 1 in. or less in diameter, with a yellow, rather smooth skin. Leaves straight, very long and narrow, half-spreading at first, afterwards erect, somewhat glaucous and gray-green, with a white line running through the middle; stem smooth, branching, 3 ft. or more high; flower-heads terminal, much elongated, swollen at the base, and contracted at the top at the time of blooming; florets violet; seeds long, generally curved, pointed at both ends, and with the whole surface furrowed and wrinkled. Their germinating power lasts two years for certain, and often continues longer.

Salsafy, or Vegetable Oyster ($\frac{1}{3}$ natural size).

Mammoth Sandwich Island Salsafy.—A valuable improvement on the Common Salsafy just described. The roots are thicker, shorter, grayer; the leaves larger and greener; the flowers larger and purple-red. Yields very little seed.

CULTURE.—The seed is sown in spring, where the plants are to stand, in drills 10 to 12 in. apart. If the weather is dry at the time of sowing, the drills should be watered a few times to assist the germination, which is always somewhat uncertain. The seedlings should be thinned out to about 4 in. apart in the drills, and the hoe and the watering-pot should be used when necessary. The roots may be gathered for use about October, and will yield a supply all through the winter. They are always finer and smoother if the ground has been well dug and prepared before sowing.

USES.—The roots are sent to table boiled, and the tenderest leaves form a very good salad.

In some parts a yellow-flowered variety of Salsafy is grown, which probably originated from a botanical species different from *T. porrifolius*. This might be either *T. pratensis*, L., which is common in meadows throughout the whole of France, or *T. orientalis*, which is larger than *T. pratensis* in all its parts, and consequently comes nearer to the size of the cultivated plant; or it might be *T. Major*, Jacq., which in all respects, except the colour of the flowers, resembles the Common Salsafy (*T. porrifolius*). It appears certain, moreover, that *T. porrifolius* itself was first brought into cultivation at a comparatively recent date.

SAMPHIRE

Crithmum maritimum, L. *Umbelliferæ*.

French, Perce-pierre. *German*, Meer-Fenchel. *Flemish* and *Dutch*, Zeevenkel. *Italian*, Bacicci. *Spanish*, Hinojo marino. *Portuguese*, Funcho marino.

Native of Europe, including Great Britain.—Perennial.—Samphire usually grows on rocks or the steep sides of cliffs by the seaside, but always above high-water mark of the highest tides. It is a plant with a creeping root-stock; the stems are short and stout, finely striated, and often branched, the branches being very widely forked. The leaves are twice and thrice divided into linear, thick, swollen, fleshy segments. Flowers small, whitish, in terminal umbels; seeds oblong, elliptical, yellow, flattened on one side, and convex, with three prominent ribs on the other; remarkably light for their size. Their germinating power is quite gone after the first year. By the seashores the Samphire is gathered from the rocks where it grows naturally, but it may be grown in gardens by sowing the seed in autumn, as soon as it ripens, in good, light, well-drained soil. It is advisable to cover the seedlings in the winter with some protection from frost, to which the plants are rather

Samphire ($\frac{1}{10}$ natural size).

sensitive. It grows still better when planted in crevices at the bottom of a wall with a warm aspect. The leaves are pickled in vinegar and used as a seasoning.

SUMMER SAVORY

Satureia hortensis, L. *Labiatæ.*

French, Sarriette annuelle. *German*, Bohnenkraut. *Flemish* and *Dutch*, Boonenkruid. *Danish*, Sar. *Italian*, Santoreggia. *Spanish*, Ajedrea comun. *Portuguese*, Segurelha.

Native of South Europe.—Annual.—A small-sized plant, 8 to 10 in. high, with an erect, branching, herbaceous stem. Leaves soft, linear, slightly obtuse, and narrrowed into a short leaf-stalk; flowers pink or white, borne in clusters of from two to five; seeds brown, ovoid, very finely granulated. Their germinating power lasts for three years. The seed of the Summer Savory is sown in the latter end of April, or in May, in good, warm, light soil; or plants may be forwarded by sowing in March in a hot-bed, and planting out in the open air about the end of May. In June the ends of the stems may be gathered for use; the plants then form branches, and continue to produce new shoots for several weeks. The leaves and young shoots are used for flavouring.

Summer Savory ($\frac{1}{8}$ natural size; detached branch, natural size).

WINTER SAVORY

Satureia montana, L.

French, Sarriette vivace. *German*, Perennirendes *oder* Winter-Bohnenkraut. *Spanish*, Hisopillo.

Native of South Europe.—Perennial.—A low-growing plant, spreading on the ground. Stems woody, at least at the base, slender, very branching, and from 1 ft. to 16 in. high; leaves narrow, linear, very acute, and slightly channelled on the upper surface; flowers white, pink, or pale lilac, in small axillary clusters; lower lip divided into three segments; seeds brown, triangular-ovoid in shape, and very finely shagreened. Their germinating power

lasts for three years on an average. The seed may be sown in spring or the latter end of summer, on the edges of beds of other vegetables, or in drills 14 to 16 in. apart. The plant is sufficiently hardy to withstand ordinary winters in the climate of Paris, provided it is grown in well-drained soil free from stagnant moisture. It requires no attention; but if the stems are cut down every spring to about 4 in. from the ground, a much more abundant supply of vigorous young shoots will be produced. The leaves and young shoots are used for flavouring, like those of the Summer Savory.

Winter Savory ($\frac{1}{8}$ natural size; detached branch, natural size).

SCORZONERA

Scorzonera hispanica, L. *Compositæ.*

French, Scorsonère. *German*, Scorsoner, Schwarz wurzel. *Flemish* and *Dutch*, Schorseneel. *Danish*, Schorsenerrod. *Italian*, Scorzonera. *Spanish*, Escorzonera. *Portuguese*, Escorcioneira.

Scorzonera.

Native of Spain.—Perennial.—This plant is cultivated as an annual or a biennial. It has a fleshy tap-root, resembling that of the Salsafy in size and flavour, but distinguished from it by the black colour of the skin. The leaves also of the Scorzonera are much broader than those of the Salsafy; they are lanceolate-oblong and pointed; the stem-leaves are sessile and are also of some breadth. Flowers bright yellow; seeds white, smooth, very long, blunt at one end and more or less pointed at the other. Their germinating power lasts for two years at least. The Scorzonera is grown in exactly the same manner

as the Salsafy. After the first year's growth, the roots will continue to increase in size without becoming less fit for use, even though the plants may have produced some stems and flowers in the course of the summer. The roots are eaten boiled, like those of the Salsafy ; the leaves also may be used as salad.

FRENCH SCORZONERA

Scorzonera picroides, L. ; *Picridium vulgare*, Desf. *Compositæ.*

French, Picridie cultivée. *Italian*, Caccialepre.

Native of South Europe.—Annual.—Radical leaves sinuated, or cut into entire or toothed lobes, generally obtuse, and forming a rather full rosette 10 to 12 in. in diameter. Stems numerous, branching, smooth, bearing a few long, narrow leaves, which are clasping at the base and usually toothed ; flower-heads terminal, largish, swollen at the base, and composed of yellow florets ; seed brown, small, long, marked with four furrows and four prominent transversely notched ridges. Its germinating power lasts for five years. It is sown in drills like Parsley or Chicory, and the leaves are cut for use as small green salad, like Chicory. After being cut, the plants send out fresh leaves, and several successive cuttings may be made in the course of the season. In hot weather frequent waterings are serviceable. The young leaves are used as salad, especially in Italy.

SCURVY-GRASS

Cochlearia officinalis, L. *Cruciferæ.*

French, Cochlearia officinal. *German*, Löffelkraut. *Flemish*, Lepelkruyd. *Dutch*, Lepelblad. *Danish*, Kokleare. *Italian* and *Spanish*, Coclearia. *Portuguese*, Cochlearia.

Scurvy-grass ($\frac{1}{10}$ natural size).

Native of Europe.—Perennial, but cultivated as an annual.—This plant has some resemblance to the Water-cress. Leaves rounded, numerous, shining, and dark green ; radical leaves long-stalked and heart-shaped ; stem-leaves sessile, oblong, and more or less toothed ; stems numerous, bearing small white flowers ; seeds small, oval, slightly angular, rough skinned, and red-brown in colour. Their germinating power lasts for four years. All the green parts have

a strong acrid taste and a very tarry flavour. The seed is sown where the plants are to stand, and, if possible, in a cool, shady position. Scurvy-grass requires no special attention. The leaves are sometimes eaten as salad, but the plant is more usually grown for medicinal purposes, its anti-scorbutic properties being well known.

SEA-KALE

Crambe maritima, L. *Cruciferæ.*

French, Crambé. *German*, Meer-*oder* See-Kohl. *Flemish* and *Dutch*, Zeekool. *Danish*, Strand-kaal. *Spanish*, Soldanela maritima.

Native of Europe.—Perennial.—Leaves broad, thick, fringed, often twisted and cut at the edges into rounded segments, and a very peculiar glaucous green, almost the same on both sides of the leaf; stems stout, branching, from 20 in. to 2 ft. high; flowers very numerous, white, and broad, succeeded by seed-vessels which are almost spherical, a little less than $\frac{2}{5}$ in. in diameter, white, rather hard, never opening when ripe, and each containing only a single seed. The germinating power of the seed declines rapidly after the first year.

Sea-kale ($\frac{1}{3}$ natural size).

The Sea-kale, which is found in the wild state on most of the sea coasts of Western Europe, is very little used as a vegetable in France, although it has been for many years extensively cultivated in England. The leaf-stalks of the plant are prepared for table use by blanching in a dark place, by which means tender shoots of an agreeable flavour and only a slightly bitter taste are obtained, whereas if grown exposed to the light they become intolerably acrid.

CULTURE.—Sea-kale may be propagated either from divisions or cuttings of the root or from seed. By the first-named method, in February or early in March, the roots of old plants are cut into pieces about 4 in. long, which are at once planted, where the crop is

to stand, in good, well-dug, and well-manured soil, and at a distance of 2 ft. 8 in. from one another in every direction, as the plants grow to a pretty large size. In the first year the young plants attain a certain degree of strength, and may be cut for use in the ensuing winter, if a supply is badly needed. It is better, however, not to commence cutting until the second year. In raising plants from seed, the seed is sown either in a seed-bed or where the plants are to stand. In either case, it should be sown as soon as possible after it ripens and without being shelled. When the young plants in the seed-bed have made four or five leaves, they are planted out permanently, at the same distance from one another as the cuttings of the roots above mentioned. In sowing where the plants are to stand, the seed is placed in holes or pockets, which also should be the same distance apart as the root-cuttings. These pockets should be well filled with compost, and the ground should be kept very free from weeds. The growing plants should be frequently watered until they have attained their full size. When they are sufficiently strong, and out of danger from the black flea (*Haltica nemorum*), all the seedlings in each pocket are pulled up except the strongest one, which is left to grow, and during the remainder of the year and the whole of the following years the plants are treated in exactly the same way as plants raised from root-cuttings. They will not be fit to cut for use until the spring of the third year, and after that they will continue to bear for eight or ten years.

In order to blanch Sea-kale, each crown of the plant is covered with an inverted flower-pot, care being taken to stop the hole in the bottom so as to entirely exclude the light, and the pot is also more or less covered with soil or dry leaves. If it is desired to force the plants, the pots should be completely covered with suitable manure, and in a few weeks the shoots will be sufficiently grown for use. In gathering them, there need be no hesitation in cutting them at some distance below the blanched part, as the root-stock has always a tendency to grow overground. Plants may also be forced in a hot-house, hot-bed, or any other place supplying artificial heat. For this purpose the plants are taken up entire, and replanted close to one another in fresh sand. As with plants grown in the open air, the shoots should be covered, either with more sand, or in any other way so as to exclude the light. Care should be taken to cover the plants with soil every year, to prevent the roots from becoming bared. In order to maintain the vigour of the plants, some shoots should be left uncut on each plant, and these should not be allowed to flower, as the plant would thereby be more or less exhausted for nothing. It is advisable to go over the plants every autumn and remove all dead leaves and weak and superfluous shoots, and also to spread some light soil or compost over any parts of the ground where the roots of the plants are becoming bared.

As the Sea-kale is a seaside plant, a little common salt, mixed with the soil, can hardly fail to be beneficial to its growth.

Like Rhubarb, the use of Sea-kale is at present almost confined to the English people at home and abroad. It has gone to America and the antipodes, but has not crossed the Channel! We speak of its general use—in a few gardens in France it may be seen, but they belong to those who have learned to care for the plant in England or who have English gardeners.

Forced Sea-kale fit for use can be had early in December, and by growing a sufficient number of plants a constant supply may be maintained till late in the spring. The stock of roots may either be grown from seed sown in the spring, or by selecting roots from plants lifted in the autumn to be prepared for forcing, which may be easily accomplished in any warm structure kept dark for blanching purposes. Seeds of Sea-kale may be sown in March or early April, in drills 9 in. apart, or broadcast upon beds 4 ft. wide, covering them with fine soil. When large enough, the young plants should be thinned out to several inches apart to afford ample room for growth. The following spring they will be large enough to transplant into a piece of ground deeply trenched and dressed with rotten farmyard manure. Some time in March lift the plants carefully with a fork, and plant them in rows 12 in. asunder and 9 in. plant from plant, *i.e.* when grown for lifting in autumn for forcing. But if to be planted to make stools for forcing in the open air—which may be done by covering them with hot manure and leaves—plant the rows 3 ft. apart and $2\frac{1}{4}$ ft. clump from clump. This will give plenty of room to cover the plants with heating material. Three or four plants may be placed in each clump, allowing 3 or 4 in. between each plant. Take care that the plants are 3 in. clear of the rims of the Sea-kale pots which are placed over them when ready for forcing. Where the plants are grown from roots or thongs, when lifted in autumn for forcing, the strongest should be selected; but where the stock of roots is scarce, thongs may be used about the thickness of a quill pen, when they will be strong enough to force the following spring. Cut the roots 9 in. in length, leaving the top or thick end level, and the thin end slanting about $\frac{1}{2}$ in., when it will emit a number of fibres. Tie the roots thus prepared in bundles, and lay them in some fine sandy soil, covering them 2 in. in thickness.

Ground intended for Sea-kale should be deeply trenched during autumn, and enriched by several inches in thickness of rotten manure. If ridged as the trenching proceeds, the ridges must be levelled down in spring before planting. Early in April is a good time to plant the roots or thongs; they will then be found to have formed crowns, and will be pushing out young fibres. Rake the ground level after levelling down the ridges, tread it firmly, and plant the sets in rows 12 in. asunder and 9 in. plant from plant. The ground will require to be frequently hoed between the plants during summer to keep down weeds and the surface open. Liquid manure will be found of great benefit to the plants during summer, and if at hand, a dressing of artificial manure may be given, for by feeding well during the growing season fine strong roots will be the result. As soon as frost kills the leaves in

autumn the plants intended to be lifted for forcing should be taken up and laid in some light soil. Open a trench at one end of the plantation and lift the plants, with as many roots attached to them as possible. After taking off the thongs for next year's crop, lay the roots in some light dry soil, covering their crowns over with some dry litter to keep frost from them. Thus a few roots may be had during winter for forcing when required. From 55° to 60° will be heat enough, and the roots may be planted either in large flower-pots or boxes. If in pots, invert another the same size over the one in which the roots are planted. Thus circumstanced and placed in the temperature just named, fine, crisp, well-blanched Kale will be produced. If required soon after being put in warmth, place a few barrow-loads of hot manure in the house, and on that set the pots. The warmth induces quick growth and superior heads. If in boxes, they should be deep enough for the roots to stand upright, and there should be depth for the Kale to grow to its full length before it reaches the lid of the box.

If more convenient, the roots may be planted in light soil in the Mushroom-house, covering them over with some light material to keep the crowns in darkness. Fine crops may also be grown upon ordinary hot-beds covered with frames and wooden sashes; if glass sashes are used, they must be covered with straw and double mats to exclude light and keep the temperature of the frames equable, *i.e.* about 60°. The roots may be planted in light soil or in pots placed upon the heated material, which should be covered with sifted ashes or some light material to keep down the rank steam. Where Kale is required in large quantities, a Cucumber or Melon-house with bottom heat at command will be found to be one of the best structures in which to produce it. Put a few inches of soil over the slates or boards forming the bottom over the pipes or hot-water tank; in this set the roots upright several inches apart, running some soil in between them, and water well, and as soon as the crowns show signs of growth, give another soaking, and cover them to the depth of 9 in. or 1 ft. with dry, sifted leaf-mould or cocoa-nut fibre. Thus treated, in a very short time the tips of the leaves will appear above the covering, when the Kale will be fit for use.

When forced in the open air, Sea-kale pots or boxes having wooden covers must be placed over the clumps of plants, and the pots or boxes must be covered with fermenting material, consisting of hot stable manure and leaves well mixed together. Care must be taken that the manure does not overheat, or the crowns will get scorched and the crop lost for the season. When planted in rows, if a covering of ashes or light loose soil is placed over the crowns from 9 in. to 1 ft. in depth just before the crowns start into growth in spring, the heads of Kale will grow up through the covering, and when uncovered the result is often a very superior crop, which, being late, is generally very acceptable, especially if, after a severe winter, other crops are scarce.

Sea-kale on the Coast.—Between Calshot Castle and Leap, Hampshire, Sea-kale grows wild luxuriantly on the beach, just above high-water mark, and those who live close to the shore claim so much of it as is opposite their domain. In autumn, when the stems die down,

they cover each stool with shingle, to the depth of 18 in. or so, which answers two purposes: it keeps the crown from being trodden underfoot in winter, and when the Kale commences to grow in spring it blanches it. The shoots are ready for use about the middle of March. A good harvest is made of it when fit to cut, which is just before it peeps through the shingle. The latter is carefully removed by the hand, so as not to break the tender stalks, which turn out quite clean and well blanched. It is sent to Southampton and Cowes, where it finds a ready market. Although all the crowns are covered at the same time, they do not all come in at one time; for the cutting generally lasts three weeks. There is no reason why Sea-kale should not be grown on the coast in many places—that is, where any waste space is left above high water for its accommodation. Where any beach exists above high-water mark, seed may be sown in the following manner:—With a shovel open a trench 1 ft. deep, if shingly; but, if sandy, half that depth will do; sow the seed in it as you would Peas, but more thinly; then fill it up, which is all that is necessary until the roots are large enough to be transplanted, which, if the seed be sown in March, will be in the succeeding March. Take the roots up as carefully as possible, and plant them four in a 9-in. square, leaving a space of 3 ft. between the squares, and, if in lines, there should be a space of 6 ft. between the lines. When covering the crowns for blanching, the shingle may be heaped up over them in ridges along the lines. This Kale is generally well blanched, stout in growth, and in every way excellent; when cooked, the flavour is more delicate than that of ordinary forced Sea-kale, and it often produces stems 9 in. long, each of which weighs one pound, and some twenty ounces. The reason of its quality is the use of the clean shingle. There is too much direct use of manure in the common way of forcing Sea-kale, and used in a way, too, which can contribute very little to the nourishment of the plant. Manure is for the roots, not the tops. Therefore we prefer the clean forcing which is possible in any heated and darkened structure to the old way of piling fresh manure over the Sea-kale plot in the garden.

Market-Garden Culture. — Some growers raise Sea-kale plants from seed, but the majority propagate them from root-cuttings. It is, however, advisable once in every few years to raise plants from seed in order to infuse fresh vigour into the stock. The best way of increasing Sea-kale is from the trimmings or cuttings of the fleshy roots cut away from the plants when they are lifted for forcing. These thongs or roots, when removed, are thrown into a heap in a shed, there to remain until all the plantations that are to be lifted for forcing have been dug up and trimmed. The best of the trimmings are then selected, cut up into pieces about 4 in. long, and laid in a heap by themselves, and the remainder thrown away. In January beds are prepared for the cuttings, about 4 ft. in width, any length, and raised 6 in. higher than the surrounding level, to keep the Sea-kale roots healthy and free from damp. The cuttings are laid thickly on the surface of the bed and covered with soil. At planting time, which is in March, the beds are uncovered, when the roots will have formed several eyes, all of which are rubbed off, excepting the strongest top one.

Some growers do not cut the roots until planting time, but lay them on the beds as selected from the shed. In March, when the beds are uncovered, they select the best eye, then cut the roots at the required length below it, and rub off all other eyes, as in the previous case. The Sea-kale cuttings, being thus prepared for planting, are inserted with iron-shod dibbles into ground which was well manured and deeply dug or trenched in winter, levelled in February, and lines drawn along it 3 ft. apart and planted with Cauliflowers, keeping them at the same distance asunder in the rows. Between the lines of Cauliflowers other lines are drawn precisely in the middle, and in them are planted White or Green Paris Cos Lettuces 18 in. apart. In the rows occupied by the Cauliflowers, too, Lettuce-plants are inserted alternately. A Sea-kale plant is now placed alternately with the Lettuces and Cauliflowers, but in the same lines. The Lettuces are first ready for market, and are removed before they injure the Cauliflowers, which by the end of June are marketed, leaving the Sea-kale, which will be coming up strongly by this time, in sole possession of the soil. Some growers plant Sea-kale sets 15 to 18 in. apart amongst spring Cabbages, which are all removed before they can materially injure the Sea-kale. Others plant them between Asparagus ridges; but in this case they must all be lifted at the end of the first season, as is also the case when they are planted between fruit bushes and Moss Roses. Some market-gardeners who grow roots for sale plant their sets at 18 in. apart each way, and never intercrop the ground amongst them, but take great care of them; and, under such management, they get finer roots than those produced among other crops. No care is necessary among Sea-kale plantations throughout the summer and autumn, beyond frequently hoeing the surface soil, cutting away all flower-spikes, and rubbing off all small shoots that may chance to spring around the main one.

When forcing-time arrives, if the field is to be kept to yield what is termed "natural" Kale, *i.e.* without being forced in any way, every third row of roots is lifted as required for forcing, and thus the rows are left in pairs with a space of 3 ft. between them. The surface of the soil is then raked clean, and from this wide space the rows are earthed over to the depth of 6 in. to prevent the frost penetrating the ground amongst the crowns, and thus rendering it cold and late. The Kale begins to push about the second week in March, and, according to the position of the field and the nature of the soil and weather, a supply may be gleaned therefrom till the end of April. As soon as the point of a shoot of Kale is discerned above the ridge, the head is fit for cutting.

For early forcing, the very best crowns, and such as the leaves die away from earliest, are selected and trimmed, so that 4 or 5 in. of the main stem, with the crown on the top, only remain. These are then placed closely together in an upright position in a hot-bed prepared for starting them in, which, in the case of the earliest batch, consists of a manure-bed covered with frames and sashes, and a few inches deep of soil levelled within the frames for planting the roots amongst. A heat of 65° or 70° is kept up inside the frames, if possible, by applying hot linings of manure and by placing litter or mats on the surface over

the glass, which latter also keeps all dark and blanches the Kale. Sea-kale growers try to have a good cutting on Lord Mayor's Day; but this is considered too early for regular forcing.

Regular forcing commences about the first fortnight in November, and large trenches or beds, on which Cucumbers were grown during the summer, are cleared out and re-filled with hot manure, over which 8 in. of soil is placed, and therein the Sea-kale is planted thickly in lines across the bed, which are about 5 in. apart, and about the same space for a margin is left empty on each side. Amongst the roots, and all round the beds, rows of stakes are inserted, 18 in. of their length being left above the soil, after which some 6 or 7 in. deep of short litter is strewed over the whole surface of the beds, which are then covered over with mats supported on the ends of the stakes. Hoops and mats are often used instead of stakes. In about three or four weeks after the beds are made up cutting begins, when it is necessary to uncover the beds as the operation proceeds, drawing the short litter off the crowns to get at them, and re-placing it as speedily as possible, as all the crowns are not fit to cut at the same time.

Beds for later crops are prepared on a well-sheltered plot of ground as near home and the manure-heap as possible. The ground is marked off into spaces either 4 or 5 ft. wide, with alleys 2 ft. wide between them. These spaces are used as beds, over which the soil from the alleys is placed, after finely breaking it, until the alleys are 20 in. deep. The Sea-kale crowns are then all lined into these beds as described in the case of earlier beds, and thus the beds are left uncovered until they are required for forcing; but, as a rule, two or more of them are always being forced, and others started to succeed them. As these beds have no bottom-heat, it is not necessary that they should be immediately covered, as in that case they, being incited at the bottom, would grow, no matter whether their crowns are cared for or not; but, in this instance, having no exciting agent, and being in a dormant state, they await the grower's convenience. In forcing them, the alleys between the beds are firmly filled with fermenting manure, and the beds being covered, as formerly stated, with short litter and mats supported on the upright stakes, all is finished. The Kale takes a longer time to push into growth by this means than when forced on a manure-bed, and it does not come quite so regularly. This method, however, has the advantage of less trouble and risk, and great convenience in keeping up a supply until it can be produced from the open-air beds, after which the forced roots are removed to a heap by themselves, or to the piggery, where their vitality is sure to be destroyed. If conveyed to a field at once, with the manure which formed the beds, and dug in, they would grow again, and prove a future annoyance.

There are only a few varieties of Sea-kale in cultivation :—

The Common, the young blanched leaves of which have a purplish tinge when they are exposed to the light.

The Lilywhite, the young leaves of which do not become purple, but change to green under similar conditions. In other respects the two varieties are identical.

The Feltham White, with large leaves, rumpled at the edge and large white ribs.

Lately a variety of Crambe Tatarica (?) has been advertised under the name of *Ovidius*, but it does not appear to be equal to the above varieties.

USES.—The blanched stalks are eaten boiled, almost in the same way as Asparagus. When properly cooked, they preserve all their firmness, and have a very fine and agreeable flavour, like that of hazel-nuts, with a very slight amount of bitterness.

SHALLOT

Allium ascalonicum, L. *Liliaceæ.*

French, Échalote. *German*, Schalotte. *Flemish* and *Dutch*, Sjalot. *Danish*, Skalottelog. *Italian*, Scalogno. *Spanish*, Chalote. *Portuguese*, Echalota.

Native of Palestine.—Perennial.—Athough botanically very closely allied to the cultivated Onion, the Shallot, in its manner of growth, differs from it completely from a horticultural point of view. It is a plant which seldom produces seed, but has a profusion of leaves, and its bulbs, when planted in spring, speedily divide into a great number of cloves, which remain attached to a common disc, and in a few months become as strong as the parent bulb. It has been in cultivation from a very remote period, and there are now several rather distinct forms of it in existence. [It may be well to note that the plant commonly sent in quantities to the London market is not the True Shallot, but a small roundish Onion with a rich brown skin. The true Shallot has a pale gray skin, and is elongated in shape.—R.]

CULTURE.—The cloves are planted immediately after winter in good, rich, well-manured soil. Well-rotted farmyard manure suits the Shallot better than that which is fresh and strawy. It is still better, when possible, to plant the cloves in ground that was plentifully manured in the previous year. They should not be deeply buried, and the cloves of the Common Shallot should be placed about 4 in. apart. They may be grown either in beds by themselves, or on the edges of beds containing other vegetables. When the leaves commence to wither, about July, the tufts of plants are pulled up and left to dry for a few days, after which they are divided and the bulbs stored in a dry place. Those bulbs which are intended for planting may be left in the ground some time longer.

USES.—The bulbs, which keep for the whole year, are used as seasoning, and give a more delicate flavour than most Onions. The leaves are also eaten, cut when they are green.

True Shallot.—Bulb the size of a small Walnut, sometimes larger, pear-shaped, narrowed in the upper part into a rather long

point, and covered with a russet-coloured skin, of a coppery red colour in the lower part, shading off into gray towards the upper extremity, and often wrinkled lengthways. The outer skin is thick and tough. When the dried coats are taken off, the bulb is greenish at the base, and violet-coloured at the top. Leaves small, very green, and 10 to 12 in. long. This variety, which is more extensively grown than any other, has the advantage of keeping very well. At the Central Market, in Paris, some sub-varieties of it are met with, viz.—

True Shallot.

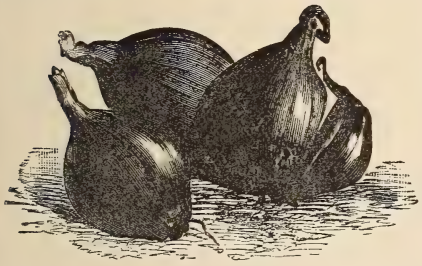
Échalote Petite Hâtive de Bagnolet. — Somewhat smaller than the type or true variety, and produces a great number of cloves to each plant.

E. Grosse de Noisy.—Bulb the size of a small fig. This variety keeps well, and has a very thick tough skin. It does not multiply so much as the other kinds.

E. Hâtive de Niort.—This is somewhat larger than the True Shallot, which it very much resembles in other respects, but commences to grow sooner.

It is easy to perceive that these three forms are only slight modifications of the True Shallot.

Jersey, or False, Shallot.—Bulbs short, almost always irregular in shape, but sometimes perfectly rounded and broader than long, when they quite resemble a small Onion ; skin coppery red, thin, and easily torn. The bulb, when stripped of the dried coats, is entirely violet-coloured, the tint being somewhat paler than that of the True Shallot. The leaves are distinguished by their very peculiar glaucous hue. The bulbs do not keep so well as those of the True Shallot, and commence to grow sooner in spring. The Jersey Shallot flowers and seeds pretty regularly, the seed exactly resembling Onion seed. Indeed, in all the characteristics of its growth, this plant resembles an Onion, amongst which it might be classed after the Potato Onion.



Jersey Shallot.

Another variety has been mentioned under the name of

Alençon Shallot, with bulbs still larger than those of the Jersey Shallot and likewise with glaucous foliage. There is also a variety of the Jersey Shallot grown with silver-white bulbs, mild, and agreeable in flavour, but difficult to keep. The *Ghent Shallot* and the *Russian Shallot* differ but little from each other, and resemble the common Jersey Shallot. They are vigorous-growing plants with rounded bulbs.

SKIRRET

Sium Sisarum, L. *Umbelliferæ.*

French, Chervis. *German*, Zuckerwurzel. *Flemish*, Suikerwortel. *Danish*, Sukkerrod. *Italian*, Sisaro. *Spanish*, Chirivia tudesca. *Portuguese*, Cherivia.

Native of China.—Perennial.—Authors generally concur in describing the Skirret as a native of China. It was introduced into France at a very early period, as it is mentioned by Oliver de Serres as a plant commonly cultivated in his time. He considered it to be a native of Germany, and to have been introduced from that country into Italy by the Emperor Tiberius. In any case the plant appears to have been more generally cultivated two or three centuries ago than it is at the present day.

Skirret ($\frac{1}{20}$ natural size; detached roots, $\frac{1}{8}$ natural size).

It is a plant with numerous swollen roots, forming a bunch from the upper part of the neck, somewhat like Dahlia roots, but much longer and more slender. Leaves composed of large, shining dark green leaflets; stems 3 to 4 ft. high, channelled, smooth, usually produced in the second year, but often in the first; flowers small, white, in umbels; seeds brown, oblong, curved, often cylindrical, and marked with five longitudinal furrows. Their germinating power lasts for three years. Roots grayish white; flesh firm, very white, and sweet. The centre of the root consists of a woody core which, if not removed before cooking, is very detrimental to the root as a vegetable, and is not easily separated from the fleshy part.

CULTURE.—Skirret may be propagated either from seed, offsets, or divisions of the roots. The seed is sown in autumn or early in

spring. When the seedlings have made four or five leaves, they are planted out permanently, in good, moist, rich, well-manured soil, and will commence to yield abundantly in the ensuing autumn. As the plants delight in abundance of moisture, they should be plentifully watered all through the summer. Divisions of the roots or offsets of old plants are planted in March or April, and the plants raised in this way are treated exactly like those raised from seed. It has been asserted that the roots of plants which have been raised from divisions or root-cuttings have the core less woody than those of plants raised from seed. This, however, is only true when a careful selection has been made of the roots used for propagating. Plants raised in the same seed-bed differ very much from one another in the size of the woody core, and it is evident that, by means of a judicious selection, the best may be propagated to the exclusion of all the others. As the Skirret is a very hardy plant, the roots may be left in the ground all the winter, and only taken up as they are wanted for use.

USES.—The roots, which are tender, sweet, and slightly floury, are used in the same manner as Salsafy or Scorzonera roots.

SORREL

Rumex, L. *Polygonaceæ.*

French, Oseille. *German*, Sauerampfer. *Flemish* and *Dutch*, Zuring. *Italian*, Acetosa. *Spanish*, Acedera. *Portuguese*, Azedas.

Many species of *Rumex* are cultivated in gardens, all of which are perennial plants, and characterised by the acidity of their leaves. Of these, the principal varieties which are grown have sprung from *Rumex Acetosa*, *R. montanus*, *R. scutatus*, and *R. Patientia*, all of which grow wild in France. The garden Sorrels may be ranked among the plants which have been least modified by cultivation, as most of them are little, if anything, better than wild plants of the same species growing under favourable conditions.

COMMON SORREL

Rumex Acetosa, L.

Oseille commune.

Native of Europe.—Perennial.—Leaves oblong, hastate at the base, with long-pointed auricles directed downwards almost parallel with the leaf-stalk, which is long and channelled ; stem hollow, striated, and often red ; flowers diœcious, in terminal and lateral clusters ; seeds small, triangular, brown, and shining. Their germinating power lasts for four years.

CULTURE.—The plant may be propagated by division of the tufts in March or April. This method is employed when, for

instance, it is desired to form edgings of male-flowered plants alone, as these are not liable to be exhausted by bearing seed. The more usual way is to raise the plants from seed sown in spring, in drills, and, if possible, in good, deep, moist soil The seedlings, when strong enough, are thinned out to the distance of 6 to 8 in. from one another in the drills. In about two months after sowing, some leaves will be fit to gather. Some persons, when gathering, cut off the whole plant with a knife, but the Parisian market-gardeners, who are well skilled in the cultivation of this plant, always gather the leaves one by one, selecting only those which are fully grown: a more abundant and continuous supply is obtained in this way than by cutting off all the leaves, large and small, at the same time. A plantation of Common Sorrel will last for three or four years; when its productiveness begins to decline, new plants, raised either from seed or divisions of the tufts, should be substituted. The leaves are very extensively used, and are sent to table boiled.

Broad-leaved French Sorrel.

Broad-leaved French Sorrel (*Oseille de Belleville*).—This is the most extensively grown variety of the Common Sorrel, and is almost the only kind cultivated in the vicinity of Paris. It differs from the type in the greater size and paler colour of its leaves, and comes very true from seed. The market-gardeners around Paris often have whole fields under this plant, and, by growing it under frames, keep up a constant supply of fresh leaves nearly all the year through.

White Large-leaved Sorrel.

White Large-leaved Sorrel.—Remarkable for the breadth and size of its leaves, which surpass those of the Belleville Sorrel. The old *Virieu Sorrel*, though an excellent, white, very early variety, is far

from equalling this, both as regards size of the leaves and productiveness.

The following kinds have also been recommended :—

Lettuce-leaved Sorrel.—A variety with broad, rounded, very light green leaves.

O. Blonde de Sarcelles.—This kind is distinguished from the Broad-leaved French Sorrel by having longer leaves, and the leaf-stalks entirely green, without any tinge of red.

All these varieties, in short, differ very little from one another, and, when propagated from seed, revert more or less to the Broad-leaved French Sorrel.

MAIDEN SORREL

Rumex montanus, Desf. ; *Rumex arifolius*, All

Oseille vierge.

Native of South Europe.—Perennial.—Leaves oval-oblong, hastate at the base, almost smooth, rather deep green, with short auricles of an almost bluntly rounded or shortly pointed shape and directed outwards ; leaf-stalks pink-coloured at the base ; stem resembling that of the Common Sorrel ; flowers dicœcious, usually barren. The leaves of this species are rather larger than those of the Common Sorrel, and not so acid, and the plant is slow in running to seed. As it is dicœcious, it may be employed, like the Common Sorrel, for making edgings, using male-flowered plants alone. Two forms of this Sorrel are distinct, viz. the Common or Green-leaved and the Crimped-leaved Maiden Sorrel ; the leaves of the latter being larger, slender, very much crimped, and marked with small red spots on the midrib and larger veins at the lower part of the stem. The wild form of the Maiden Sorrel (*Rumex arifolius*) is often met with in France. It is especially common in the pine forests on the high mountain districts of Central and Eastern France from the Vosges to the Alps.

ROUND-LEAVED SORREL

Rumex scutatus, L.

Oseille ronde.

Native of South Europe.—Perennial.—Peculiar in appearance, and not to be mistaken for any other Sorrel. The stems are slender, mostly prostrate, with small gray-green rounded or heart-shaped leaves, bearing at their base narrow auricles, directed outwards ; unisexual flowers are produced on the same plant, in spikes. The leaves are exceedingly acid. Its principal merit being its resistance to drought, it is usually grown as a summer crop.

In addition to the foregoing, another species (*Rumex alpinus*, L.) is sometimes grown in gardens under the name of Pyrenean Sorrel. It has soft, wrinkled, reticulated leaves, and is especially characterised by the width of the sheathing part of the leaf. As a table vegetable it does not appear to possess any quality in which it is not surpassed by the Patience Dock, or Herb Patience (*Rumex Patientia*), which see.

WOOD-SORREL

Oxalis Acetosella, L. *Oxalidaceæ.*

French, Oxalis oseille. *Italian*, Acetosella. *Spanish*, Acederilla.

Native of Europe.—Perennial.—This plant, which grows wild in woods and cool, shady places, is sometimes gathered and eaten as salad, the leaves being acid and similar in flavour to those of the Common Sorrel. It is not often cultivated, and if any one desires to have a few tufts of it in his garden, the best way is to dig them up where they grow naturally and transfer them to a cool, shady part of the garden. By cutting them frequently a continuous supply of tender leaves may be obtained, and the plants will also be prevented from seeding. If allowed to seed, they sometimes multiply to such an extent as to become troublesome weeds.

Deppe's Wood-sorrel (*Oxalis Deppei*, Lodd.).—Native of Mexico.—Perennial.—Roots fleshy, white, semi-transparent, and resembling small Turnips; leaves very long stalked, composed of four rounded very light green leaflets, each marked with a brown spot; flowers large, carmine-pink, green at the base of the petals.

CULTURE.—This plant is easily multiplied from the bulblets which grow in large numbers near the neck of the root. These are planted in April, in good light soil, either on the edges of beds or in rows 12 to 16 in. apart. The plants will continue growing until late in autumn without requiring any attention except watering in very dry weather. It is advisable to take the roots up before the approach of frosty weather, but if some of the plants can be conveniently covered with frames and, in this way, kept growing until November, they will produce much finer and larger roots.

USES.—The roots, which are tender and juicy, but very insipid, may be eaten. The leaves, used like those of the Common Sorrel, are a better table vegetable than the roots. They are tender, with an agreeably acidulous flavour, and, after being cut, the plant speedily sends out fresh leaves, which are fit for use in two or three weeks.

SOY BEAN

Soja hispida, Mœnch. *Leguminosæ.*

French, Soja. *German*, Soja-Bohne.

Native of China.—Annual.—In China the varieties of this plant are almost as numerous as those of the Kidney Bean are in Europe. There are dwarf kinds and also tall ones which, if not climbers like our tall Kidney Beans, at least trail for a considerable distance. Up to the present time, only one or two dwarf early varieties have been cultivated in Europe and considered of any importance for table use, and to the description of these we shall here confine ourselves. So far, it does not appear liable to be attacked by any insect, nor to suffer from any parasitical fungus, while its vigorous habit of growth, its great productiveness, and the richness of its beans in nutritive properties cause it to be justly esteemed as a valuable plant for agricultural and economic purposes.

Soy Bean ($\frac{1}{8}$ natural size; detached pods, $\frac{1}{3}$ natural size).

CULTURE.—The Soy Bean is grown in exactly the same manner as Kidney Beans. It requires nearly the same degree of heat, and ripens at the same time as the mid-season varieties of these plants. All the pods on a plant, however, do not ripen together, those which set first being often full-grown and nearly ripe while the plant still continues to flower on the upper part of the stem.

USES.—The beans are eaten, either green or dried, like Kidney Beans. The dried beans should be steeped in water for some time before they are cooked, otherwise they will remain almost as hard as they were when uncooked.

Common Yellow Soy Bean.—A dwarf thick-set plant, forming small compact tufts from 10 to 20 in. high, according to the richness of the soil and the time of sowing. Flowers very small, green or lilac, in axillary clusters, and succeeded by hairy pods, each containing two or three small beans, which are pale yellow when

ripe, and are scarcely larger than those of the Rice Kidney Bean; their germinating power lasts for two years. This variety ripens in three or four months after sowing.

Étampes Yellow Soy Bean.—This variety is not so early as the preceding one, but is far more productive. The plant forms branching tufts from 2 to over 2½ ft. high, which become laden with pods growing from the axils of all the leaves. The beans are much larger than those of the preceding variety, being almost as large as those of the China, or Robin's-egg, Kidney Bean, and sometimes a little more elongated. Their germinating power lasts for two years. This plant requires at least four or five months to complete its growth and come to maturity; however, in ordinary seasons, it ripens the greater part of its pods in the climate of Paris.

Étampes Yellow Soy Bean (⅛ natural size; detached pods, ⅓ natural size).

Podolian Soy. — A little over 18 in. high, erect, with medium-sized, dark green, much reticulated leaves; the pods numerous, curved, containing usually three black thick seeds. Much grown in Southern Russia, its principal merit is its earliness. The colour of its seed makes it less valuable for table use.

Very Early Brown-seeded Soy.—Earlier than the Podolian, with almost straight pods in large clusters, and brown seed. Like the Podolian, it ripens its seed in the climate of Paris.

SPINACH

Spinacia oleracea, L. *Chenopodiaceæ.*

French, Épinard. *German*, Spinat. *Flemish* and *Dutch*, Spinazie. *Danish*, Spinat. *Italian*, Spinaccio. *Spanish*, Espinaca. *Portuguese*, Espinafre.

A plant of rapid growth, the wild form having arrow-shaped, pointed leaves, while in the cultivated varieties the leaves are

broader and rounder, and are remarkable for the thickness of the parenchyma. In cooking they lose nearly all their savour, but keep their green colour. When growing, these leaves form a rosette, from the centre of which the flower-stem makes its appearance more or less speedily, according to the variety. The Spinach, being dicœcious, bears only male flowers on some plants and only female flowers on others. The seed, which, of course, is only found on the female plants, varies very much according to the variety, that of some kinds being armed with three very sharp points, while in other kinds the seed is round and without points.

CULTURE.—The seed is best sown where the plants are to stand, in drills 10 or 12 in. apart. It is advisable, in order to have a continuous supply, to make successional sowings every fortnight, or at least every month, especially in spring and summer, when the plants run to seed quickly. Frequent and plentiful waterings are indispensable to ensure an abundant growth and good quality in the leaves. The market-gardeners around Paris have for a long time preferred the Prickly-seeded varieties for spring sowings, reserving the Round-seeded kinds for late summer and autumn sowings. At the present day, however, we have Round-seeded varieties which are quite as hardy and as slow in running to seed as any of the Prickly-seeded kinds.

The first sowing for summer use should be made early in March, as a rule; but in warm soils and situations a small sowing may be made in February.

SUMMER SPINACH.—Owing to the Summer Spinach being so liable to run to seed, it is advisable to make small sowings often rather than to make large sowings at long intervals—as by the former plan a regular supply of fine young leaves is ensured, whereas in the latter case small tough leaves have often to be used in consequence of successional crops not being sufficiently advanced to give a supply. It is therefore obvious that a sowing should be made once a fortnight, or at longest every three weeks, during the summer months. These sowings may consist of the Round Spinach for the first two or three sowings, and the Flanders or the Lettuce-leaved varieties for sowing through the summer. These two last-named kinds are far superior, both in quality and cropping, to the Round Spinach. For summer sowings it is best to choose as shady and moist a situation as possible, to save watering, as well as to prevent the plants from running to seed too quickly. All Spinach seed is benefited by being soaked in water for a few hours previous to sowing, inasmuch as it germinates more quickly and the growth is often stronger. Sowing in drills is by far the best mode of sowing the seed, as then the crop is more easily kept free from weeds, and watering or mulching can be effectually done when desired, as well as rendering it much easier to gather the crop. The drills should be about 1 ft. apart, and the plants, after thinning, at least 6 in. asunder. The Lettuce-leaved and Flanders require even more room than this, if the produc-

tion of fine large leaves be aimed at. The last summer crop should be sown on a well-prepared border or quarter about the middle of July, in drills about 18 in. apart; this will yield a good supply of fine large leaves till October is out.

For the late or winter crop, prepare about the end of July a border or sheltered quarter; apply a good coating of thoroughly decayed manure, trench the ground well and cast it up into ridges, so as to expose as great a surface as possible to the influence of the atmosphere. Any dry day till August 10th or 12th cast down the ridges and pulverise with a steel fork, so as to sweeten and incorporate all together. Then draw lines 1 ft. apart and sow the hardy Prickly variety. As the plants advance, thin them out from 6 to 9 in. apart, and maintain a healthy and vigorous growth by constant surface stirrings in suitable weather: this, if attended to, prevents canker, and encourages the production of an abundance of fine leaves for use every day throughout the winter. Timely forethought should be taken to shelter a portion with a row of short stakes about 18 in. high, interwoven with fern, straw, evergreen branches, furze, heath, or other material, which should be neatly applied, and also made wind-proof. Thatched hurdles or frames, cheaply made of battens tacked together and thatched, might also be used for the purpose of protecting from frost. The last sowing, to supply leaves in the spring, generally consists of the Prickly variety. The time to sow this crop, however, depends upon the locality. If sown too soon, it runs to seed the same season, and is useless. To sow it late enough to have a crop of leaves without the plants throwing up their flowering stems is what has to be aimed at, and for this reason many sow twice for the winter crops. In some parts of Scotland and the north of England the middle of August is not too soon, while in the south it is not often safe to sow before the end of September; but a practical acquaintance with the climate and locality will generally be the best guide. This crop is often sown after Potatoes or Onions. The winter crop will generally afford a good supply of leaves till nearly the beginning of June, by which time the Round or Summer Spinach will be coming in in abundance.

A deep, rich, moist soil is necessary to grow good Spinach; and if liberal supplies of liquid manure be given to summer crops, a great advantage will be gained thereby. Some care is required in picking Spinach, especially in winter, when the growth is often not equal to the demand. Indiscriminate picking will soon ruin the crop; the largest leaves should therefore be taken first, and picked off singly, so as to avoid injuring the plants.

CULTURE FOR MARKET.—English market-gardeners seldom grow Spinach as a summer crop, as it "bolts" or runs to seed before many leaves have been gathered from it, and in that case it is by no means a profitable crop. The Round-leaved sort is that which is used for spring sowings, the first of which is made in February, a second about March 1st, and another sowing or two at an interval of three weeks or thereabouts, just as space and convenience permit. The latest spring sowings are made on a damp, cool piece of ground, provided such can be obtained, as, thus circumstanced, better leaves are produced in hot weather than on dry and warm soils. In July, if the weather

be moist, a sowing of the Round-leaved variety is usually made on a spare piece of ground for autumn use. Early in August a large sowing of the Prickly-seeded or the Flanders is made broadcast on fields or in rows about 8 in. apart. Some growers prefer the Flanders on account of its large fleshy leaves and hardy constitution, and it sells in the market better than the Prickly sort. By sowing in the first and last week of August and the middle of September, a succession of Spinach from October till May is easily kept up. Coleworts are frequently planted in a field of late Spinach, at 3 or 4 ft. apart. In damp winters a large proportion of the roots may die, but in ordinary winters they survive, and produce an abundance of large fleshy leaves in spring. No care is taken with this crop from the time of sowing till gathering, beyond hoeing and thinning once or twice. Spaces under fruit-trees are also covered with Spinach sown broadcast; and as the trees are not furnished with leaves, they do not shade the plants. Open fields are also often sown with Spinach in beds, which are covered by throwing soil over them from the alleys; on these beds Cauliflowers are also planted, at the usual distances apart. By the time the Spinach has come well up the Cauliflowers will have become well established, so that the Spinach, which as soon as ready is removed for market, does not injure the Cauliflowers.

USES.—The leaves are eaten boiled.

COMMON SPINACH

Spinacia spinosa, Mœnch. ; *Spinacia oleracea* **a**, **L.**

Épinard ordinaire.

This form, which appears to come nearer than any other to the wild plant, is now very rarely cultivated, at least in France. It is distinguished by its rather narrow, pointed, arrow-shaped leaves, by having the leaf-stalks tinged with red, and the seed armed with sharp, horn-like prickles. It is not a kind to be recommended. The germinating power of the seeds lasts for five years.

Large Prickly, or Winter, Spinach (⅛ natural size).

Large Prickly, or Winter, Spinach. — Resembling the preceding kind in the seed, this variety is distinguished from it by the broadness

of its leaves (which, however, are distinctly arrow-shaped) and by its great productiveness. When sown thin, it often forms broad spreading tufts, with numerous branches, plentifully covered with leaves and rather slow in flowering. This habit of growth is peculiar to the plant. The Round-seeded varieties usually form only a simple rosette, from which, at flowering time, one or more vertical stems issue, bearing from their earliest growth well-developed organs of fructification. These stems also are hollow at the centre and much thicker, being sometimes $1\frac{1}{5}$ to $1\frac{3}{5}$ in. in diameter, while the stems of the Prickly-seeded kinds are seldom thicker than one's finger. This is a good, vigorous-growing, and hardy variety, and, as we have already observed, is preferred by the Parisian market-gardeners to all other kinds for spring sowings.

There is a Prickly-seeded variety with roundish leaves, which bears a tolerable resemblance to the Lettuce-leaved Spinach, and is known by the name of *Épinard Camus de Bordeaux*, or *E. Rond à Graine Piquante.* It is very clear that, of two varieties which are equally good in other respects, the preference will always be given to the Round-seeded kind, the seed being more convenient to handle and more easily sown.

ROUND-SEEDED SPINACH

Spinacia glabra, Miller ; *Spinacia oleracea β*, L.

Épinard à graine ronde.

The opinion of botanists that the Round-seeded Spinach is a distinct species from the Prickly-seeded, appears to be well founded, as the shape of the seed is a very permanent characteristic in these plants. Horticulturally also, the two kinds are clearly different, the Round-seeded always growing more thick-set and forming more compact and less spreading tufts than the Prickly-seeded varieties. Their germinating power lasts for five years.

Large Dutch Spinach.

Round-seeded Round-leaved Large Dutch Spinach. — A good, vigorous, and hardy kind. Leaves arrow-shaped, large and broad, light green, crimped, especially while young, with blunt points generally slightly turned underneath. The leaf-stalks are about as long as the blades of the

leaves. Seed round. This form may be considered as the type of the Round-seeded varieties, which are improved modifications of it. At the present time, the Spinach which is most frequently sold under the name of Dutch Spinach, especially in Germany, is nothing but the Lettuce-leaved Spinach.

Round-seeded Flanders Spinach.—This is the best-known and most extensively cultivated Round-seeded Spinach. Its characteristics are almost the same as those of the true Dutch Spinach, but it is of somewhat greater size, and the leaves are

Round-seeded Flanders Spinach.

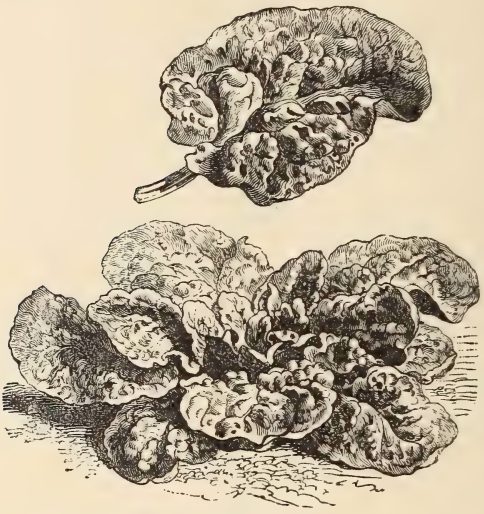
rounder and less arrow-shaped. It is an excellent and productive variety, and may be sown nearly all the year round. When sown in autumn, it yields a very considerable crop in spring, and in this respect it and the following variety have a marked advantage over the Late-seeding Spinach, the growth of which is not so vigorous at the end of winter. The latter, however, in its turn, surpasses

Viroflay Giant Spinach ($\frac{1}{6}$ natural size).

them in the summer months, when it yields a continuous supply of broad tender leaves, after the earlier varieties have entirely run to seed.

Viroflay Giant Spinach.—This variety, which is a rather new one, resembles the Flanders Spinach in the shape of its leaves and

in its habit of growth, but is of much greater size, as it is not unusual to see tufts of it measuring 2 to nearly 2½ ft. in diameter, with leaves 10 in. long and 8 in. wide at the base. Like all extremely vigorous-growing and large-sized varieties, this requires a plentiful supply of nutriment, and is worthy of recommendation, being especially suited for well-manured and well-kept gardens.



Lettuce-leaved Spinach (⅛ natural size).

Lettuce-leaved Spinach.—A very distinct variety, with oval leaves, which are rounded both at the base and the upper extremity, of medium size, spreading on the ground, and very dark green. Leaf-stalks short and stiff. The name of this variety does not convey a very accurate idea of its appearance, and it might, perhaps, be more appropriately styled the Sorrel-leaved Spinach, only that this name has been already applied to another variety which is now seldom met with in cultivation, and of which the leaves, with their short and partially violet-tinged stalks, very

Victoria Dark Green Summer Spinach.

closely resemble Sorrel leaves, not only in shape, but also in their light, pale colour. The Lettuce-leaved Spinach is a rather productive variety, notwithstanding its low and thick-set habit

of growth. It answers well for summer and autumn sowings, and, when sown before winter, is one of the latest kinds to run to seed in spring.

Victoria Dark Green Summer Spinach.—Distinguished by its dark green glazed leaves, its lateness to flower makes it available during the whole summer. Like other late-seeding Spinaches, it forms a rosette of leaves flat on the soil.

Savoy-leaved, or Curled, Spinach.—A rather curious kind with fairly large, much crumpled, glossy dark green leaves. Early and productive, but rather prone to run quickly to seed.

Savoy-leaved Spinach.

Late-seeding, or Long-standing, Spinach.—We are indebted to M. Lambin, Secretary-general of the Soissons Horticultural Society, for our acquaintance with this excellent variety, which surpasses all others in the length of bearing. The plant forms compact tufts, with numerous dark green leaves somewhat more crimped and less rounded than those of the Lettuce-leaved Spinach, but yet resembling them more than those of any other variety. The leaf-stalks are very short, rarely exceeding the length of half the blade of the leaf. The distinguishing quality of this variety is, as its name indicates, that it runs to seed more slowly and later than any other kind. The difference of

Late-seeding (Long-standing) Spinach.

time in its favour may be estimated at from fifteen to twenty days at least, according to circumstances, and is especially marked in spring sowings, which are so often liable to run to seed too soon.

Long-standing Catillon Spinach.

Long-standing Catillon Spinach. — A late long-bearing kind; leaves medium-sized, rounded, resembling those of the preceding, but smoother; a very good variety for spring and summer sowing.

NEW ZEALAND SPINACH

Tetragonia expansa, Ait. *Mesembryanthemaceæ.*

French, Tétragone cornue. *German*, Neuseeländischer Spinat. *Flemish*, Vierhouk. *Danish*, Nyseelandsk Spinat. *Italian*, Tetragona.

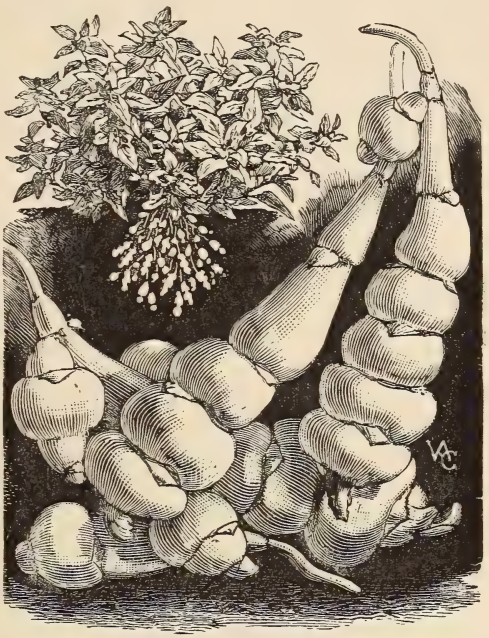
Native of New Zealand.—Annual.—Stems spreading, branched, from 2 to over 3 ft. long, bearing numerous alternate thick, fleshy leaves, resembling Orache leaves in shape; flowers axillary, small, greenish, and without petals, succeeded by hard horned seed-vessels somewhat like the Water Chestnut in shape, and of an almost woody texture in the interior, where the seeds are enclosed. The germinating power of the seeds lasts for five years. This plant is grown to supply the place of the ordinary Spinach during the hottest months of the year, or in dry, arid localities where the ordinary Spinach does badly. The seed is sown, either in a hot-bed or in the open ground, where the plants are to stand, in May, and the plants will continue to yield a supply of leaves during the whole summer, requiring hardly any attention. The leaves are eaten boiled and minced like ordinary Spinach.

New Zealand Spinach.

STACHYS TUBERIFERA

Or Chinese or Japanese Artichoke.

A perennial, with creeping roots, quadrangular stems and opposite, oval, pointed, dull green, articulated, rough leaves; flowers in compact terminal clusters, seldom seen in European climates, and therefore not seeding. The plant is, however, very easily increased by the thickened ends of the underground stems. These rhizomes, of which the engraving gives a very good idea, are white, watery, and tender, and fine skinned. They are formed only late in the season when the vegetation of the plant has almost ceased and the stems begin to wither. They keep with difficulty and should be lifted only when wanted.



Stachys Tuberifera.

CULTURE.—Their culture is very simple. The rhizomes are planted from February to April, in light soil about 1 ft. apart. No other care is required during summer than to keep the soil free from weeds and to water in case of protracted drought. The rhizomes may be lifted from October onwards. They are eaten fried, or as a salad, etc.

STRAWBERRIES

Fragaria, L. *Rosaceæ.*

French, Fraisier. *German*, Erdbeere. *Flemish* and *Dutch*, Aardbezie. *Danish*, Jordbeer. *Italian*, Fragola. *Spanish*, Fresa. *Portuguese*, Morangueiro.

Several species of *Fragaria* have been introduced into cultivation at different times, and, either through the improvement of the wild forms themselves, or by being crossed with one another, have contributed to produce the diversified varieties which are now found in gardens. The number of these varieties has become so great, that it is absolutely impossible to mention them all in this work, and we have been obliged to make a selection comprising only those

kinds which appeared to us most worthy of note, either as possessing in a high degree a combination of various good qualities, or as being specially adapted for some particular purpose. Earliness, productiveness, perfume, and fine flavour are qualities which every one will appreciate in a Strawberry, and it is according to the merit of varieties in these different respects that the amateur who grows them in his own garden for his own use will select the kinds of Strawberries which suit him best to plant. But the private gardener who forces them for an early crop, or the market-gardener who grows them on a large scale to supply the markets, must look for other qualities in the kinds which he takes in hand, especially if the fruit which he intends to sell has to be carried to a distant market. In the latter case, the property of bearing carriage without being damaged is one of such high importance that very often the possession of it is sufficient to decide the selection of the kinds which make their appearance in the markets.

All the varieties of cultivated Strawberries have in common the advantage of being remarkably early, and they supply the first fruit that ripens in spring. As the attentions which their culture requires vary to some extent according to the species from which the varieties have sprung, we shall give only some very general instructions on the subject. The germinating power of the seeds lasts for about three years.

CULTURE.—Almost all the varieties of Strawberries suffer from dry and excessively warm weather; it is therefore advisable to plant them in cool, moist ground, and in a position somewhat sheltered from the burning rays of the sun. If a little time is thereby lost, the produce, on the other hand, will be more abundant and more prolonged. The hardiness of Strawberries is such that they will withstand the winter without any protection from frost, but almost all the varieties are injured by an excess of moisture at that time of the year, and are liable to rot at the root if planted in badly drained ground. Once the warm weather has arrived, however, Strawberry plants, on the contrary, require to be plentifully watered, and it will generally be found advantageous to give them a good mulching with stable manure or straw, which, by preventing evaporation, will keep the roots cool and moist, so that the plants will not require to be so frequently watered.

USES.—The fruit, which is excellent and very wholesome, is eaten fresh, and is also used for preserves, etc.

WILD, or WOOD, STRAWBERRY

Fragaria vesca, L.

Fraisier des bois.

Native of Europe.—Perennial.—A herbaceous, stoloniferous plant. Leaves composed of three folded toothed leaflets, which

are hairy on the lower part ; flower-stem erect, branching, hairy, a little taller than the leaves ; divisions of the calyx reflexed after the flower has faded ; hairs on the flower-stalks adpressed ; fruit small, pendent, rounded or conical in shape ; seeds prominent, and extremely small. This species is common in the woods of the whole northern hemisphere, and especially so in mountainous districts. It has seldom been seen in gardens since the introduction of the Red Alpine Strawberry. We must, however, mention some forms of it which have been preserved up to the present day in the neighbourhood of Paris, from an adherence to old practices in the first instance, and also because the fruit of the Wood Strawberry possesses a quite peculiar perfume and delicacy of flavour. In low-lying districts its season lasts hardly a month, but on the mountains, on account of the difference in the time of ripening at different altitudes, Wood Strawberries may be gathered from June to September.

Fontenay Early Small Strawberry.—A variety differing very little from the Wood Strawberry. It is a very early kind, ripening seven or eight days before the Red Alpine Strawberry. Fruit small, round, and dark red when very ripe. The plant is not a continuous bearer, and only produces fruit in spring.

Montreuil Strawberry.— A very distinct variety, with rather narrow, very light-coloured, folded leaves, which have a peculiar appearance. The plant is vigorous and productive. Fruit of a rather long, conical shape, but sometimes broad and of a cock's-comb form, and dark red when well ripened, which occurs somewhat late, namely, about the end of June or early in July. This variety is very productive, but it only bears once in the year. It was raised in the neighbourhood of Montlhéry by a horticulturist named Montreuil, in the early part of the eighteenth century.

The *Fraise Monophylle*, or *F. de Versailles*, which has only a single leaflet in each leaf, is another variety of the Wood Strawberry, raised by Duchesne, the author of the celebrated "Monographie du Fraisier."

RED ALPINE STRAWBERRY

Fragaria alpina, Pers. ; *F. semperflorens*, Duch.

Fraisier des Alpes.

Native of the Alps.—Perennial.—A very different plant from the Wood Strawberry, and distinguished from it by the greater size of all its parts—the fruit, in particular—and especially by the property peculiar to it of producing flowers and fruit continuously all through the summer. The introduction of this Strawberry into cultivation is of no very distant date, as it was brought

into France from Mont Cenis by Fougeroux de Bondaroy, in 1754; but it speedily attained a very important position in horticulture, on account of its valuable quality of producing fruit at a season when all other varieties of Strawberries have long ceased bearing. The fruit has nearly the same appearance and flavour as that of the Wood Strawberry, but is generally larger, longer, and more pointed in shape. The seed also is perceptibly larger and longer.

Red Alpine Strawberry (natural size).

CULTURE.—As this Strawberry reproduces itself exactly in every respect from seed, many gardeners are in the habit of raising it in this way instead of from runners, and they generally agree in the opinion that plants raised from seed are more vigorous and more productive than the others. In order to ensure a very prolonged and very abundant supply late in autumn, it is a good plan to rest the plants which are intended to bear at that time, by not allowing them to flower in spring, or at least by discontinuing to gather the fruit at an early period, and by cutting off the flowering stems and the runners, but continuing to water the plants all the time. Alpine Strawberries, when properly taken care of, ought to yield almost as abundantly in September as in spring. The greatest difficulty in their culture is to make them fruit plentifully in July and August.

Alpine Belle de Meaux Strawberry.

White Alpine Strawberry.—There are numerous varieties of Alpine Strawberry. One of the oldest known is the White-fruited kind, which differs from the ordinary kind

in the colour of the fruit, which is also not quite so acid. The plant is an equally continuous bearer.

Janus Alpine Strawberry. — A very fine variety of the Alpine Strawberry, characterised by the fruit being conical, large, and well shaped, and becoming almost black when perfectly ripe. It is very productive, a very continuous bearer, and highly worthy of recommendation in every respect. The variety comes very true from seed.

Bush Alpine Red Strawberry.

Alpine Belle de Meaux Strawberry.—A sport of the Red Alpine Strawberry, characterised by the large size of its fruit and the intense red colour of the whole plant. Not only the stems and runners, but the flowers themselves, are often tinged with red, and the fruit almost black when quite ripe. Produces abundantly during six months of the year, and comes quite true from seed.

Red Alpine Duru Strawberry.

Bush Alpine Strawberry. — This very distinct variety has the advantage of growing without producing any runners, which often make it troublesome to keep Strawberry-beds in order, and, on this account, it is peculiarly well adapted for planting as edgings. There is one form of it with red, and another with white fruit. Both are hardy, productive, and continuous bearers, and reproduce themselves from seed with hardly any variation. They may also be multiplied by division of the tufts.

Red Alpine Duru Strawberry.—Another improved variety of

Alpine Strawberry has been pretty much grown for some years past under the name of *Fraise des Quatre Saisons Améliorée Duru.* This is distinguished from the other varieties by the peculiar shape of the fruit, which is very long and slender; it is lighter in colour than the Janus Strawberry. The size of the fruit of the Alpine Strawberry might be much increased by a careful selection of seed-plants, but it must not be lost sight of that every increase in the size of the fruit is usually gained at the expense of their number or the continuous production which is the real and greatest recommendation of the Alpine Strawberry.

Alpine Berger Strawberry.

Alpine Berger Strawberry. — Comes very near the preceding variety, but has longer and thicker fruit. A vigorous grower and a very continuous bearer, producing, especially when young, much perfumed scarlet fruit.

Meudonnaise Perpetual Strawberry.—This variety, which formerly was rather commonly grown in the neighbourhood of Paris, but at present is somewhat neglected, is distinguished at first sight from all others by its rather light-coloured leaves, which have the peculiarity of being crimped or puffed in the middle, instead of being flat or folded in two, like those of most other varieties of the Alpine Strawberry. The fruit is large, conical, and very dark in colour when quite ripe. It ripens rather late.

Schöene Anhalterin (Goeschke).—A compact-growing Alpine Strawberry with red fruit, of no particular merit.

HAUTBOIS STRAWBERRY

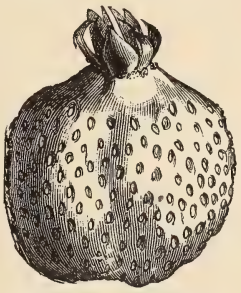
Fragaria elatior, Ehrh.

Fraisier capron.

Native of Europe.—Perennial.—A stoloniferous plant, with folded, dull, dark green, and somewhat hairy leaves. Flowers usually dicœcious through abortion; fruit a very deep red-violet. In some plants, the pistils only are developed, and in others the stamens, so that fructification will not occur with certainty unless both forms of the plant grow within a short distance from each other.

CULTURE.—The Hautbois, like most Strawberries, is almost always propagated from runners, which it produces in abundance. All the cultivated varieties of this Strawberry, being derived from a plant which grows wild in France, are perfectly hardy and easily grown; nevertheless, since the appearance of the large or Pine-apple Strawberries which have now become so common, the Hautbois Strawberries have lost much of the favour which they formerly enjoyed. The peculiar and exceedingly strong flavour of their fruit is disagreeable to many persons, and they have not the advantage of producing a second crop in autumn, like the Alpine Strawberry. Any good well-drained soil suits them, and the plants may be left growing in the same place for several years, but it is necessary to plant male and female plants together in order to ensure complete fructification.

Common Hautbois, or **Musky, Strawberry.**—This variety exhibits all the characteristics of the species from which it is derived, with a vigorous habit of growth and abundant foliage. The fruit are very numerous, nearly spherical, slightly shortened at the point, elongated at the neck, and without seeds on the part next the calyx. They do not ripen until about the end of June, and are then of a violet or wine-red colour. The flesh is very solid, juicy, buttery, and melting, white or faintly yellow, or sometimes greenish, and with a very strong flavour, something like that of Black Currants. The leaf-stalks are very hairy, especially when young.



Common Hautbois, or Musky, Strawberry (natural size).

Belle Bordelaise Strawberry.—A plant of smaller size than the preceding kind, but more thick-set and compact in growth. Leaves of a light, almost gray-green; leaflets long oval, with well-marked veins and sharp, deeply cut teeth; flower-stems erect, well raised above the leaves; flowers large, pure white, with very round petals; fruit rather long, often conical, considerably larger than that of the Common Hautbois Strawberry, and ripening about the middle of June.

The following species are also worth mentioning:—

Short-runnered Wild Strawberry (*Fragaria collina*, Ehr.).—Resembles the common Wild Strawberry, excepting that the runners are not jointed; from the Alpine Strawberry it differs in not fruiting continuously. The fruit is more like that of the Hautbois than any other kind.

Scarlet Virginia Strawberry (*Fragaria Virginiana*, Ehr.).—Native of North America.—A stoloniferous plant, with long smooth leaves and small round fruit, very slender stalks, and deeply sunk, small and brown seed. It is an early and a hardy, but not continuous bearer. The fruit is very small, and rather light scarlet even when ripe.

Chili Strawberry (*Fragaria Chilensis*, Duch.).—Native of Chili.—A stoloniferous species, of compact growth, very hairy on all its parts. Fruit large, irregular in shape, orange-coloured and more or less hairy. The fruit ripens late, and varies in form and colour. Not very hardy, and succeeds only in seaside districts, especially in Brittany.

PINE-APPLE STRAWBERRY

Fragaria grandiflora, Ehrh.

Fraisier Ananas.

The origin of this large-fruited form of Strawberry is very obscure. At the time of its introduction into cultivation, about the middle of the eighteenth century, it was not exactly known how it originated. Moreover, two kinds of Strawberry have been known by this name—one, described by Poiteau, which is not the true Pine-apple Strawberry; the other, which is much more extensively grown, especially in England and Holland, appears to have produced, either by variation or perhaps from crossing, most of the large-fruited kinds known as "English" Strawberries. It is very possible that the Pine-apple Strawberry itself is the offspring of a cross between the Chili Strawberry and some other botanical species. The typical plant, as preserved in some collections, is of a vigorous and rather thick-set habit of growth. The leaves are rather like those of the Scarlet Virginia Strawberry; the flower-stems are stout, not very tall, and somewhat hairy, and the flowers are very large; the fruit is round or slightly heart-shaped, and of a pale pink colour, with a faint yellow or salmon-coloured tint; the flesh is very white and often hollow at the centre; the seed is brown, medium-sized, and not very deeply sunk.

From the seed of this Strawberry thousands of distinct varieties have been raised, and of these we shall now describe the best and most noteworthy.

HYBRID STRAWBERRIES

French, Fraisiers hybrides. *German*, Grossfrüchtige Erdbeeren. *Spanish*, Fresones.

The varieties which are comprised under the name of Hybrid or Large-fruited Strawberries are far from presenting an identity of character, so that we shall not endeavour to give any general description of plants which exhibit so many points of difference from one another. To give some idea of the diversity which exists amongst them, we may observe that the colour of the fruit varies from white to blackish red, while the weight ranges from less than a quarter to over three ounces. The flavour also of the fruit, the size of the seed and the depth to which it is sunk in the surface of the Strawberry, the size of the flowers, the time of ripening, and the number of runners produced exhibit equally strongly marked differences.

CULTURE.—The Hybrid Strawberries like well-drained, deep, substantial soil, but they readily accommodate themselves to soils of various kinds, provided they are not brought into contact with stagnant moisture, which injures them more than anything else. Any kind of garden soil, by being moderately well dug and properly manured, can be brought to produce good Strawberries, unless the climate is excessively dry. The seed of Hybrid Strawberries is rarely sown except for the purpose of raising new varieties, and they are almost always propagated from runners—a method so prompt and easy that a better could hardly be desired. The runners are long, slender, bare, and cord-like branches, the swollen extremity of which bears a cluster of leaves, and from its under-surface speedily sends out roots and attaches itself to the soil at a short distance from the parent plant. The runners of the Hybrid Strawberries do not end with the rooting of the first cluster of leaves, but produce four or five joints in succession, each bearing at its extremity a cluster of leaves which grows and roots itself like the first, under favourable conditions. The runners begin to appear when the plant comes into flower, and continue to increase in length all through the summer, during which time the plant will also produce fresh ones, should the first have been cut off. About August, the earliest plants of the runners will be well rooted and strong enough to be planted out, either as edgings or in beds, each containing three or four rows of plants, which should be about 20 in. apart in every direction. Before planting, the ground should have been well dug, well manured, and covered with a good litter of manure or dead leaves. The young plants will begin to bear in the following spring, and the fruit will be more abundant and finer if all runners are carefully removed. As soon as the first fruit are formed, it is advisable to place a layer of long straw, or else slates or tiles, on the ground under the young fruit, to keep them from

coming into contact with the damp soil. When this is done, the fruit ripen sooner, and are always clean, even after heavy rain. A bed of Strawberry-plants usually continues to bear well for two or three years. In the second year, preparations should be made to replace the plants with new ones, so as to have the beds always in full bearing. The weakest runners and those produced latest in autumn may be transplanted into a nursery-bed, in order to be planted out in spring, but these must not be expected to bear fruit until the year after they are planted out. Strawberries are sometimes forced in hot-houses, but more usually in frames or pits heated by hot-water pipes. Plants for forcing are raised in pots and placed in artificial heat from the end of October until Strawberries begin to ripen in the open air. By pinching off the first runners of plants growing in the open air beyond the first joint, and rooting each of the young plants in a flower-pot filled with good soil, plants may be obtained sufficiently well grown to be repotted in autumn and forced in the ensuing winter. The same method may be employed to forward plants which are to be planted out in the open air. The varieties of Hybrid Strawberries which are best adapted for forcing are :—*Princesse Royale*, *Marguerite*, *Vicomtesse Héricart de Thury*, and *La Constante*; and, of English varieties, *Black Prince*, *Keen's Seedling*, and *British Queen*.

Van-Guard Strawberry.

USES.—The fruit is eaten raw, and is also made into sweetmeats and preserves.

Albany (*Wilson*).—An early and productive variety. Plant of vigorous, compact growth; leaves dark green, with long, thin, hairy stalks; leaflets oval, sharply toothed; flower-stems numerous, erect; flowers small with narrow petals. Fruit small, rounded, or heart-shaped, dark scarlet-red, and very abundant; flesh red, juicy, but very acid. Ripens mid-season. Its acid flavour and small size disqualify it for table

use, but for cooking and preserving it is unsurpassed, superior even to the famous Vicomtesse Héricart de Thury.

Van-Guard Strawberry.—A very productive, vigorous, bushy plant, with large dark green leaves. Fruit medium-sized, but very numerous, globular or oblong in shape, of bright red colour; seeds almost projecting; flesh pink, fairly sweet, but not much perfumed. It bears larger fruit than any of the other early sorts. Its chief merits are its great earliness and its abundant and prolonged yield.

Barnes's White Strawberry (*Bicton Pine*).—Plant of moderately vigorous, rather thick-set habit of growth; leaves rounded, dark, shining green, deeply and rather sharply toothed; veins very distinctly marked; leaf-stalks long, slender, and green; flowers numerous, small, and borne on short branching stems which are scarcely taller than the leaves; fruit round or conical, blunt, white slightly tinged with pink; flesh very white, not crisp, sugary, juicy, and a rather strong musky flavour; seeds half-projecting, red or brown. Fruit ripens mid-season. A very productive variety, especially notable for the white colour of the fruit. After fruiting, the plant remains remarkably compact and thick-set. It produces few runners, and these are short, stiff, and thickish, and bear the clusters of leaves closer together than the runners of most other Strawberries.

Belle de Cours Strawberry.

Belle de Cours Strawberry.—A vigorous sort, ripening late, with numerous conical dark red fruit; flesh rosy white, firm and sweet. A garden more than a market variety.

British Queen Strawberry.—Plant of medium height, and somewhat delicate; leaves oval, rather long; leaf-stalks hairy, often red; leaflets oval, nearly round, with very large short teeth; flowers very broad; flower-stems stout, usually taller than the leaves; pedicels inclined to be thick and hairy; fruit very large, oblong, often flattened, conical or square at the end, of a vermilion colour which is never very dark; flesh white, firm, very juicy, sugary,

highly perfumed, and very fine in flavour; seeds brown, rather projecting. This is certainly one of the best of all Strawberries as regards quality, and is especially to be recommended for stiff moist soils. It would, undoubtedly, be more extensively grown if it were hardier, and if its propagation was not rendered tedious and difficult from the circumstance of its producing very few runners, and these thin and slender ones.

Carolina Superba Strawberry.—Plant rather vigorous, hairy on all its parts; leaves dark green, shining on the upper surface; leaflets oval, folded or twisted, often spoon-shaped; flowers medium-sized, numerous; flower-stems rather stout, but scarcely taller than the leaves; fruit large, heart-shaped, short, and vermilion colour; flesh very white, melting, buttery, perfumed, slightly musky; seeds

British Queen Strawberry (natural size).

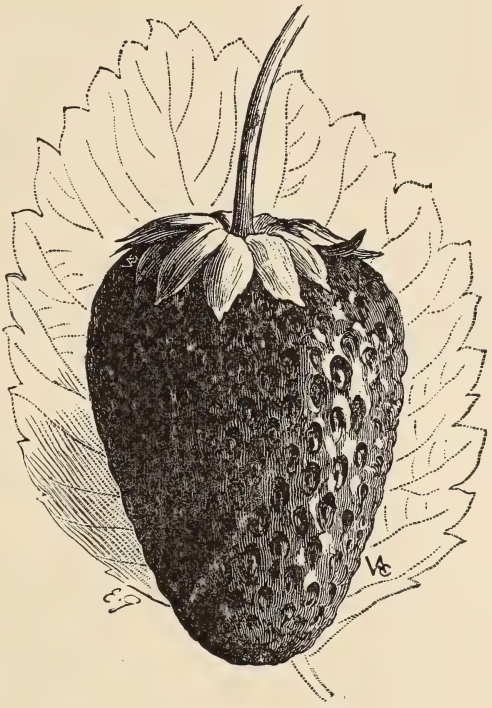
Carolina Superba Strawberry (natural size).

half-projecting. A very good and rather productive, but somewhat tender variety. Fruit ripens mid-season. Although coming near the British Queen Strawberry in other respects, this variety differs from it in producing stout, thick, hairy runners. These are not very numerous, and we have sometimes seen them flower in the same year, but such an occurrence is exceptional.

Centenary Strawberry.—A strong, vigorous plant; leaves broad, long stalked; flowers large, white, borne on very long stems. Fruit large, oblong, bluntly pointed, often cock's-comb shaped. A thick, well-coloured, glistening fruit with deeply sunk seeds; flesh pink, juicy and of good quality; ripens mid-season. Its chief merit is that with no special care it can produce as large and as beautiful fruit as those obtained at much expense with General Chanzy and other sorts famous for their great size. It therefore

suits the private grower as well as the market garden.

Crescent Seedling Strawberry. — A fairly vigorous plant, bushy, dwarf; leaves dark green, with narrow leaflets; flower-stems numerous, short and slender, bearing numerous small flowers opening very early. Fruit abundant, medium-sized, heart-shaped, of a glistening red colour; flesh red, acidulated and perfumed. This kind may be classed among the earliest varieties, equalling in this respect the May Queen Strawberry, than which it produces larger fruit and for a longer time.



Centenary Strawberry.

Docteur Morère Strawberry. — A very vigorous variety. Leaf-stalks and flower-stems rather hairy; leaves large, broad, and very dark green; leaflets broad, almost always folded on the midrib, slightly puckered and twisted, and with very large, rather deep and sharp teeth; flowers large, rather numerous; calyx very large; flower-stems stout, erect, often leafy. Fruit very large, short, very deep red when ripe, and rapidly diminishing in size; flesh pink, melting, sugary, juicy, and rather perfumed, but often hollow at the centre; seeds black and rather projecting. The flavour of the fruit somewhat resembles that of the Chili Strawberry. This variety is grown on a large scale in the neighbourhood of Paris for market supply.

Docteur Morère Strawberry (natural size).

Docteur Veillard Strawberry.—A medium-sized plant, with light foliage; leaf-stalks slightly hairy; leaflets large, oval, broad, much toothed; flower-stems stout, very branching, trailing; flowers medium-sized. Fruit fairly large, rounded or oblong, not very abundant; flesh red, perfumed, but pasty. A half-early variety.

Docteur Veillard Strawberry.

Duc de Malakoff Strawberry.—Plant exceedingly vigorous, with large broad leaves of a deep, almost blackish green; leaflets oval, rounded, with very large short teeth; leaf-stalk, flower-stems, and runners very hairy, and often tinged with red; flowers large, pure white; flower-stems stout but inclined to be short; fruit large and short, and of a peculiar brown tint when ripe; flesh yellow, something like the colour of the flesh of an apricot, juicy, melting, and with somewhat of the flavour of the Chili Strawberry. This is a very productive and very hardy variety, and ripens mid-season.

Duc de Malakoff Strawberry (natural size).

Edouard Lefort Strawberry.—A new and very distinct variety, shaped liked the Hautbois Strawberry—a shape rarely seen in hybrid Strawberries. Plant vigorous, leaves numerous, upright; leaflets large, long, dark green, borne on hairy stalks; flower-stems tall and stout; fruit round at the end and tapering at the base, where it forms a neck bare of seeds for one-third the length of the fruit. The fruit is scarlet changing to dark blood-red. The flesh is red all through, and in this respect it differs from the Two-coloured Strawberry and the Deutsche Kronprinzessin, the only two

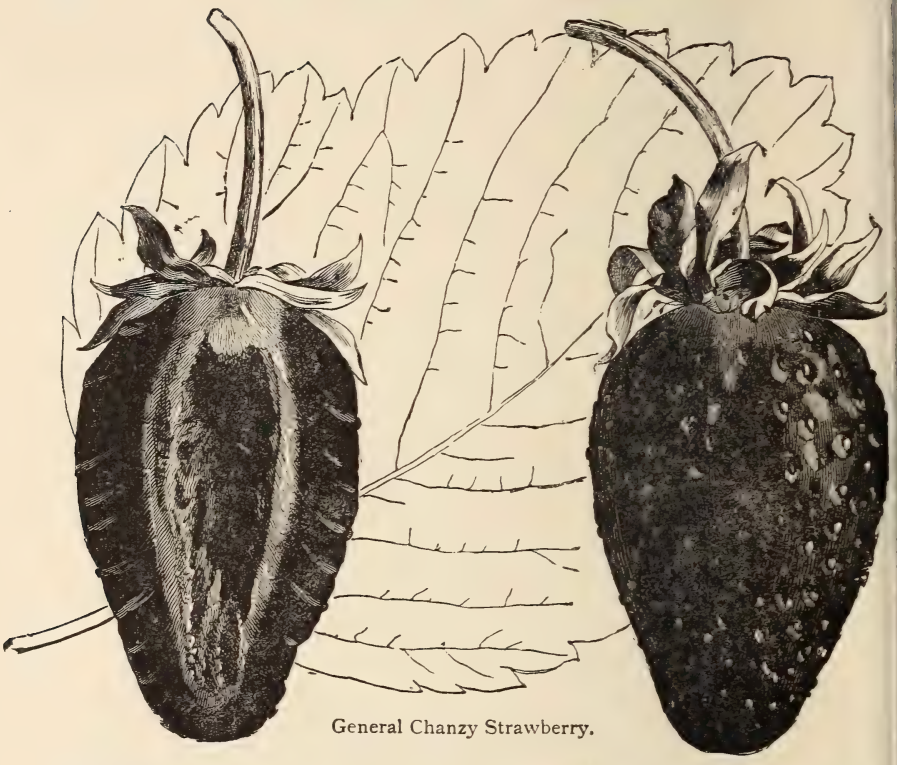
other long-necked varieties known to us, for both of these have white-fleshed fruit.

General Chanzy Strawberry.—Plant very vigorous; leaves large and dark green; leaf-stalks covered with an abundance of long hairs; flower-stems stout, erect, taller than the leaves, or partially so; fruit generally very large and long, narrowed at both ends, sometimes hollow at the centre, and of exceedingly dark red colour, which becomes nearly black when the fruit is fully ripe; flesh blood-red throughout, sugary, vinous, and sometimes perfumed to a surprising degree. This variety ripens rather late and continues bearing for a considerable time.

Edouard Lefort Strawberry.

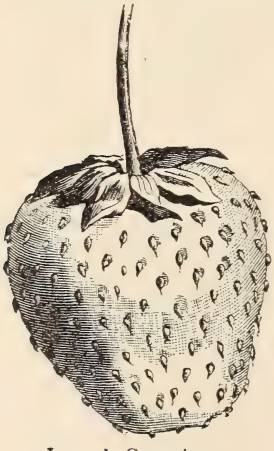
Jucunda Strawberry.—Plant very vigorous and thick-set; leaf-stalks tall; leaves medium-sized, light green, almost glazed; leaflets nearly round, with short and rather round teeth and well-marked veins; flowers medium-sized, very numerous; flower-stems stout, erect, often leafy, always very branching, and taller than the leaves; fruit very abundant, heart-shaped, of a bright vermilion-red colour, becoming darker when over-ripe, and sometimes slightly hollow at the centre; flesh red, juicy, rather perfumed, and not very sugary; seeds yellow, almost entirely projecting. Ripens half-late. The vigour and hardiness of this variety, the abundance of its fruit, their fine colour, and their capability of bearing carriage without injury, render it one of the most valuable kinds of Strawberries for market-gardens near large towns. It is in full bearing when the early kinds are on the decline.

La Constante Strawberry.—Plant of compact, thick-set growth; leaves short stalked; leaflets small, nearly round, dark, rather glaucous green, with large teeth, usually few in number, but long and sharp; flowers very numerous, small, greenish white;



General Chanzy Strawberry.

flower-stems branching, but very short, and almost hidden by the leaves. Fruit large, conical, rather short, and a rather deep scarlet colour when fully ripe; flesh pink or pale red, delicate in flavour, juicy, perfumed, and slightly deficient in sugar; seeds black, not deeply sunk. This variety is very highly to be recommended, as being productive, a very regular cropper, and taking up but little room.



Jucunda Strawberry (natural size).

La Constante Strawberry (natural size).

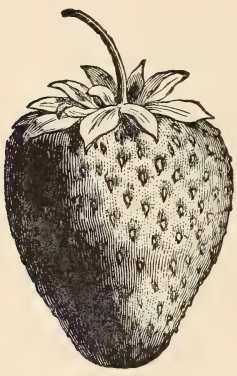
Le Czar Strawberry.—A mid-season variety, vigorous and prolific; bushy, with large and rather twisted leaves; leaf-stalks long, red, and

slightly hairy; leaflets rounded; flower-stems stout, and rather short, bearing large, erect flowers. Fruit very large, egg-shaped, long and pointed, tapering and bare of seeds at the neck, of a glistening dark red colour, with seeds deeply sunk; flesh intense red, sometimes hollow at the centre, juicy and agreeable. Is much liable to suffer from drought, and when the needed moisture is not provided, the setting of the fruit, as also their size and good shape, is seriously endangered.

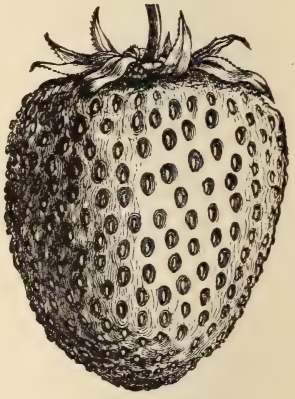
Le Czar Strawberry.

Louis Gauthier Strawberry. — A tall, robust, and leafy plant; leaf-stalks long, slender and slightly hairy; leaflets small, much rounded, bluntly toothed, and a shining dark green; flower-stems numerous, stout, long, erect or recumbent, bearing large flowers with rather twisted petals. Fruit very abundant, medium-sized or large, globe-shaped, or slightly flattened at the stem end, very regular in shape; seeds brown, half projecting, contrasting with the rosy white colour of the fruit; flesh, juicy, sugary, perfumed, and very good in quality. Half-early. Announced at first as a Large-fruited Perpetual Strawberry, it is not exactly that, for the second crop is only on the young runners in the autumn and is dependent on the season and cultivation. For productiveness, regular shape, and exquisite flavour it is among the best garden Strawberries, although the pale colour of the fruit may not appeal to every one.

Louis Vilmorin Strawberry.—Plant rather low and of medium vigour; leaflets oval rounded, shining green, with very large, rather blunt teeth; flowers broad, pure white; flower-stems very short and much branched, the branches often tinged with red and partially hidden by the leaves. Fruit heart-shaped, very regular, numerous, and very dark red in colour when ripe; flesh dark red, not very sugary, and somewhat deficient in delicacy of flavour and perfume, but very firm, juicy, and agreeable. A very hardy variety, bearing abundantly and long, and remarkable for the deep red colour of the fruit. Its runners are rather scantily produced, which hinders the speedy multiplication of the plant. It and the



Louis Vilmorin Strawberry.



Lucas Strawberry.

American variety named Wilson's Albany are the best two kinds for preserving; the preserves which are made of them having more flavour and a better colour than those made of any other Strawberries, even of those which are the best for eating uncooked.

Lucas Strawberry.—Plant vigorous, second-early; leaves rather large, light green, shining on the surface; leaflets slightly oval, with very large, rather long teeth, which are sometimes very acute, and sometimes quite round; flowers medium-sized, with round petals, and very numerous; flower-stems stout but short, often hidden by the leaves. Fruit large, oblong, well-shaped, and rather dark scarlet in colour; flesh pale pink, juicy, sugary, and highly perfumed. A variety both productive and of the very highest quality.

Madame Meslé Strawberry.—Plant not very tall, but vigorous; leaf-stalks short, spreading, very hairy; leaflets large, rounded, undulating, deeply toothed; runners tinged red. Fruit very large, oblong, short, tapering, bare of seeds at the neck, of a beautiful brilliant vermilion-red; seeds half sunk; flesh pink, of excellent

quality. Ripens half-early. The result of a cross between General Chanzy and Dr. Morère, it has inherited the delicate flavour of the latter, while it has the shape of the former. Great productiveness and large fruit give it a first place among those varieties suitable for field culture.

Marguerite Strawberry.—Plant medium-sized; leaf-stalks rather short and slender; leaflets long in comparison with their breadth, light green, very smooth on the upper surface, and with rather large sharp teeth on the margin of the upper half only of the leaflet; flowers medium-sized; flower-stems short, extremely branching, and almost trailing. Fruit very large, long, conical in

Madame Meslé Strawberry.

Marguerite Strawberry.

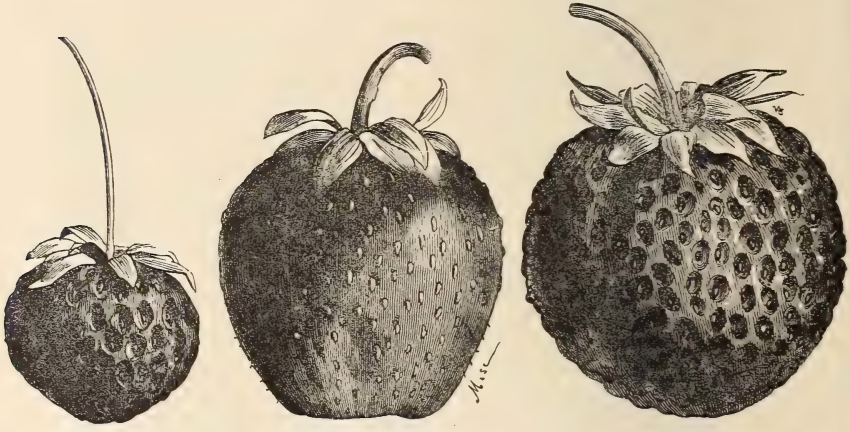
shape, and vermilion-red in colour, even when the fruit is ripe; flesh pink, very juicy, melting, slightly deficient in sugar and perfume; seeds rather deep. A very productive, extremely early, long-bearing, good forcing Strawberry.

May Queen Strawberry.—Plant of medium vigour of growth, leafy, very like the Scarlet Virginia Strawberry in habit; leaf-stalks nearly smooth; leaflets of a very long oval shape, sharply toothed on the upper two-thirds of the margin; flowers medium-sized or small; flower-stems very branching, short, seldom rising above the leaves. Fruit medium-sized or small, short, blunt, rounded, and scarlet-red; flesh pink or pale red, acidulated, perfumed, and rather sugary; seeds deeply sunk. The fruit is very agreeable to the taste, especially as it ripens in the latter end of May

before any other Strawberry, thus redeeming its sole defect of smallness.

Napoleon III. Strawberry.—Plant vigorous, with large, erect, dark green, shining leaves; leaf-stalks very hairy; leaflets large, nearly round, with broad, blunt teeth; flowers medium-sized, very round, in crowded clusters; flower-stems stout, leafy, rising well above the foliage. Fruit large, rather short, and vermilion-red; flesh very white, melting, well perfumed in warm seasons, sometimes a little hollow at the centre; seeds black, projecting. A hardy and productive variety, but ripening late, and liable to suffer much in dry seasons.

Laxton's Noble Strawberry.—Plant vigorous, with large, broad leaves borne on slender stalks; flower-stalks numerous, very branching. Fruit abundant, spherical, or shortly conical, and a glistening



May Queen Strawberry. Napoleon III. Strawberry. Laxton's Noble Strawberry.

scarlet; flesh red, juicy, sugary, perfumed, and agreeably acid. Excellent in quality, it is undoubtedly one of the most interesting varieties, not only for the garden, but also for the market, for, besides being as early, it is also very productive, and yields as fine fruit as the mid-season varieties.

June Peach Strawberry.—A rather bushy plant, with reddish, short, hairy leaf-stalks; leaflets rounded, slightly toothed, veined, dark green; flower-stems short, slender, very branching; flowers pretty large. Fruit conical, pale red; seeds deeply sunk; flesh pink, juicy, mellow, and perfumed. Ripens very late. Its chief merit is the high quality of its fruit, at a time, moreover, when the other sorts begin to lose in size and flavour.

President Carnot.—Plant of medium size; leaf-stalks long, strong, hairy, green; leaflets oval, slightly toothed, often folded;

flower-stems erect; flowers large, yellowish white petals, united at the base. Fruit a good size, oblong or globe, often cock's-comb shaped; not much coloured, hairy; flesh pink, sometimes hollow, pasty, but firm. Ripens mid-season. A very productive, but not much grown variety.

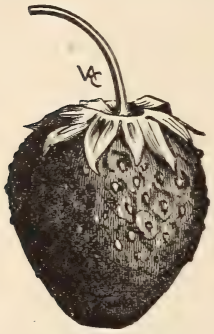
June Peach Strawberry.

Princesse Royale Strawberry. — One of the oldest varieties raised in France. Plant of medium height, but very vigorous and robust; leaves smooth, shining, and clear green; leaflets long oval, with rather sharp teeth at some distance from the base; flowers very small, but very numerous; flower-stems stout, very branching, some of them taller than the leaves. Fruit very numerous, conical, generally well shaped, and of a fine red colour; flesh perfumed, rather sugary and juicy, but somewhat hard in the centre. A very hardy, productive, and early variety. The fruit bears carriage well, and this, added to its other good qualities, accounts for the tenacity with which the Parisian market-gardeners have adhered to its culture, notwithstanding the introduction of new kinds superior to it in some respects. In the Central Market at Paris, the fruit of this Strawberry always command a higher price than those of any other varieties, except, perhaps, some choice kinds. They are especially esteemed for their fine colour and perfume.

Princesse Royale Strawberry.

King of the Earlies Strawberry.—Plant fairly vigorous, foliage light, pale green; leaflets much toothed; flower-stems numerous, slender; flowers large, and opening early. Fruit rather

large, globe-shaped or oblong, well coloured; half-early. This variety ripens at about the same time as May Queen, but bears larger fruit, resembling those of Vicomtesse Héricart de Thury. It is less vigorous and productive than most other very early sorts, and although raised a good many years ago, is little cultivated, at least in the vicinity of Paris.



King of the Earlies Strawberry.

Richard Gilbert Strawberry.—A robust plant, with shining, dark green, puckered leaves; leaf-stalks long, thin, green, and hairy; leaflets oval, toothed; flower-stems erect; flowers large, with broad petals covering each other. Fruit conical, flat, or broadened out into a cock's-comb when large; light red in colour; seeds yellow, well sunk; flesh firm, pink, juicy, rather acid, and very fragrant. Ripens late, and, being very productive, may be recommended for field culture; possesses also the merit of keeping long unpicked, and bearing handling and carriage well.

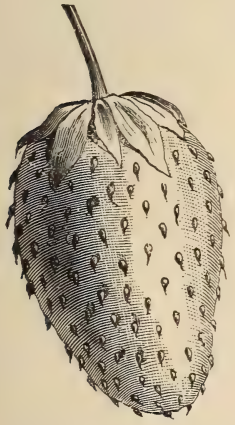
Royal Sovereign Strawberry.—Medium-sized plant, not very bushy, rather flat, but very vigorous; leaf-stalks long, very thin, hairy, slightly tinged pink; leaflets small, oval; runners very red; flower-stems stout and numerous, erect or recumbent; flowers large. Fruit abundant, large, oblong or flattened, bright scarlet-red; seeds yellow and prominent; flesh pink, juicy, acid; ripens very early. Much esteemed in England for garden culture as well as for forcing; in France it is hardy and productive, but very little grown, at least under glass.

Richard Gilbert Strawberry.

Sabreur Strawberry.—A very distinct variety, easily known from all others by its violet-coloured runners and leaf-stalks.

Leaflets very long, with very large and deeply cut teeth; in colour a rather dark glaucous-green. The divisions of the calyx are deeply coloured, like the leaf-stalks. The flowers when about to fall change to red. Fruit ovoid, almost always regularly shaped, large, often very large, and of a crimson colour more or less deep according to the temperature of the season; flesh white, sugary, juicy, and rather perfumed; seeds very black and very prominent, giving the fruit a quite peculiar appearance. This variety is certainly one of the best that has been raised of late years. It does not produce fruit of the first quality, but it is early, hardy, highly productive, and continues bearing for a long time, being one of the earliest when it commences to yield and found still fruiting amongst the latest kinds. The runners are very abundant, and the variety is, consequently, one of the easiest to multiply.

Royal Sovereign Strawberry.



Sabreur Strawberry.

Sensation Strawberry.—A vigorous and early variety; leaves broad, dark green; leaf-stalks short, thin, green; leaflets long oval, spoon-shaped, sharply toothed; flower-stems numerous, erect or recumbent; flowers of medium size, white, slightly yellow. Fruit abundant, medium-sized or large, oblong, blunt, a shining dark red when completely ripe; seeds yellow, prominent; flesh tender, pink, not very juicy, but perfumed and very good in flavour. Size is its principal merit, and the finest fruit is usually got from one-year-old plants, therefore replant at frequent intervals.

Sharpless Strawberry.—A vigorous plant, with erect leaves; leaf-stalks thin, green, and slightly hairy, leaflets rounded, sharply toothed; flower-stems short, stout, erect; flowers borne on long pedicels, very open and large, with petals united at the base. Fruit abundant, medium in size or large, short, often irregular in shape; flesh pink or red, juicy, but not very fragrant. Ripens early. Defective in shape and rather indifferent in quality, this variety is still much grown around Paris because of its hardiness and great productiveness.

Sensation Strawberry.

Sir Joseph Paxton Strawberry.—Plant of medium vigour; runners slightly hairy; leaf-stalks and flower-stems rather more so; leaves fairly numerous, and dark

Sir Joseph Paxton Strawberry (natural size).

shining green; leaflets large, oval, often puckered or twisted, and with large and rather deeply cut teeth; flowers broad, numerous, pure white; flower-stems moderately stout, and not always taller than the leaves; fruit conical or heart-shaped, well formed, and rather dark scarlet in colour. One of the best and handsomest of all Strawberries, and very productive. Ripens mid-season. In England this variety is more largely cultivated than any other by market growers. It is valued for its fine colour, large size, and firm flesh, which enables it to bear carriage well.

Souvenir de Bossuet Strawberry.—A low, almost dwarf plant, with dense foliage; leaf-stalks short, green, hairy; leaflets broad, rounded, veined, and slightly toothed; flower-stems short, flowers fairly large. Fruit abundant, large, heart-shaped, a beautiful bright red, turning to very dark red at complete maturity; seeds brown, half-sunken; flesh pale red, very juicy, sugary, agreeably

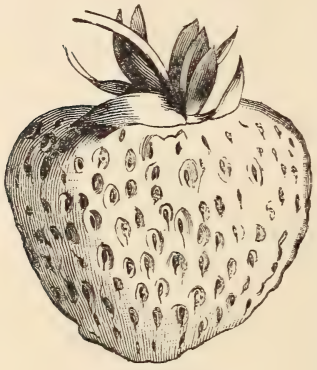
Souvenir de Bossuet Strawberry

Vicomtesse Héricart de Thury Strawberry.

acidulated. A very productive variety, its abundant foliage effectively protecting the fruit against the midday sun, but soon exhausted and producing in the end only small fruit.

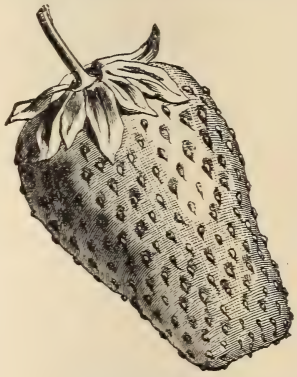
Vicomtesse Héricart de Thury Strawberry.—Plant vigorous, not very tall, but leafy, erect, and dark green, indicating a robust constitution; leaflets oval, often narrow at the base, which is without teeth, the rest of the margin bearing rather deep, large, and usually rounded teeth; flowers medium-sized or small; flower-stems

stout, very branching, and generally taller than the leaves. Fruit conical or heart-shaped, and very dark red; flesh red, very firm, sugary, juicy, sub-acid, and well perfumed; seeds half-projecting. The fruit of this variety bears carriage well. It ripens early, and is produced very abundantly and for a long time. It is, consequently, grown on a large scale for market supply, not only in France, but also in England, and is a very suitable kind for forcing. The plant is one of those varieties from which, under proper treatment, a second crop may be most readily obtained in autumn



Victoria Strawberry.

Victoria Strawberry.—A strong, vigorous plant, forming broad dense tufts; leaflets very broad, nearly round, with very large, very blunt teeth, and of a rather dark, shining green colour; flowers numerous, medium-sized; flower-stems long, stout, very branching, and rising well above the leaves. Fruit large, very short, roundish, or slightly heart-shaped, of a pale vermilion-red, and with a very delicate skin; flesh pink, exceedingly juicy and melting, and fairly sugary and perfumed; seeds very deeply sunk. Though the fruit bears carriage badly, and does not keep well, it is pretty largely grown for the Central Market at Paris, on account of its earliness and its very great and long-continued productiveness. It is especially suitable for private kitchen-gardens.



Wonderful (Myatt's Prolific) Strawberry.

Wonderful, or **Myatt's Prolific, Strawberry.**—Plant vigorous and of medium height; leaves numerous; leaf-stalks slender, rather hairy; leaflets medium-sized, nearly round, and a clear, slightly gray-green colour; flowers medium-sized, very numerous; flower-stems very stout and very branching, not always rising clearly above the leaves. Fruit long, usually flattened, almost always square at the end, and very dark crimson in colour; flesh white, very firm, juicy, very sugary, and highly perfumed; seeds black, small, projecting, and very numerous. A mid-season and very productive variety, continuing to bear for a long time, uniting great productiveness with good quality; but, owing to the rather dark colour of the fruit, not much in request in the markets.

Like all other fruit-bearing plants, the Strawberry has been the parent of so many varieties that it would be almost impossible to enumerate them all. Besides which, there are special works on this subject which treat of it far more fully than we could possibly do. We shall, therefore, in addition to the kinds already described, only mention some other varieties not yet very well known, but remarkable for their excellent qualities, some of which are employed for special purposes.

Admiral Dundas.—Plant vigorous, ripening late; fruit numerous, conical, dark red; flesh pinkish white, firm, sugary. A variety for the student rather than market uses.

Admiral Dundas Strawberry.

Belle de Paris Strawberry.

The Captain Strawberry.

Belle de Paris.—A very hardy and very productive variety. Fruit conical, large, bright red, ripening somewhat late; flesh white or red, sugary, and rather firm.

Black Prince.—Fruit small, round, becoming almost black when ripe. This is one of the earliest of all the Hybrid Strawberries.

The Captain.—A vigorous plant, with large, conical fruit, of a fine shining red; flesh pinkish white, fine and sugary. Produces but very few runners, and therefore very slow to increase.

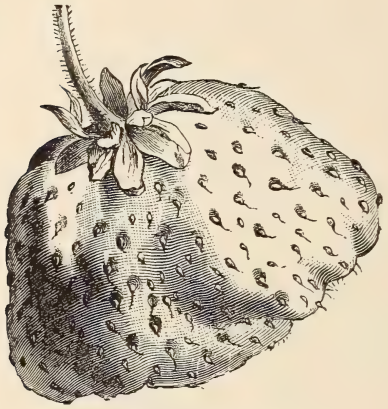
Commander.—Flower-stems long and erect; fruit abundant, long shaped, scarlet, hairy; flesh firm, pink, juicy.

Comte de Paris.—An old French variety with handsome heart-shaped fruit of a dark red colour. Flesh red. A very productive kind, and well adapted for field culture.

Dr. Hogg.—Very much like the British Queen in habit of growth, but with larger fruit, of a fine scarlet red; flesh very solid, pinkish white, juicy, delicately fragrant.

Dr. Nicaise.—Remarkable for size rather than quality of fruit; flesh pale red.

Duke of Edinburgh.—Rather vigorous ; fruit conical or heart-shaped, a very bright scarlet ; flesh pale red, slightly acid, rather



Dr. Nicaise Strawberry.

Eleanor Strawberry.

sugary and agreeably perfumed. A half-late variety, producing very large and very regularly shaped fruit.

Duke of Montrose.—A late sort, with pale green leaves and erect flower-stems. Fruit abundant, rounded or oblong ; flesh very firm, red and juicy.

Elton Improved Strawberry.

Eleanor.—A late variety ; fruit oblong, very dark red ; flesh pale scarlet, not very juicy, but sugary and fragrant.

Elisa.—Fruit medium-sized or small, of a rather pale vermilion red colour ; flesh white. Bears for a considerable time ; to be recommended for stiff soils.

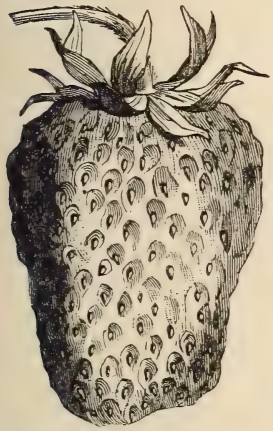
Elton Improved.—Very vigorous, ripens late. Fruit heart-shaped, dark red, flesh red, sugary, juicy, rather sub-acid.

Gloire de Zuidwyck.—A vigorous, productive, mid-early variety; fruit large, conical, deep orange or bright scarlet; flesh orange-coloured. Easily multiplied. Well adapted for market supply, its fruit keeping well.

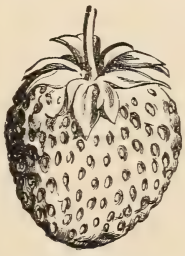
Hohenzollern.—Plant vigorous, with large round leaves; fruit numerous; top-shaped, sometimes irregular, of a slightly coppery red colour; ripens late; flesh dark red, very juicy, but not very sugary.

Kaiser Nikolas von Russland.—A vigorous plant, with large leaves and large flowers. Fruit very numerous, heart-shaped, with sometimes the end remaining green; flesh white, not very juicy, but perfumed. Very productive.

Keen's Seedling.—A very good old variety. Fruit medium-sized and of excellent quality. It is one of the best of all kinds for forcing.



Gloire de Zuidwyck Strawberry.



Keen's Seedling Strawberry.

La Chalonnaise Strawberry.

Koenig Albert.—A compact, vigorous, very productive kind. Fruit medium-sized or large, very short, flattened, light red; flesh very tender, juicy and sugary. Its runners produce sometimes a second crop. The fruit travels badly, and is easily injured.

La Chalonnaise. — Fruit highly perfumed and delicate; flesh white. One of the best Strawberries grown, but rather delicate.

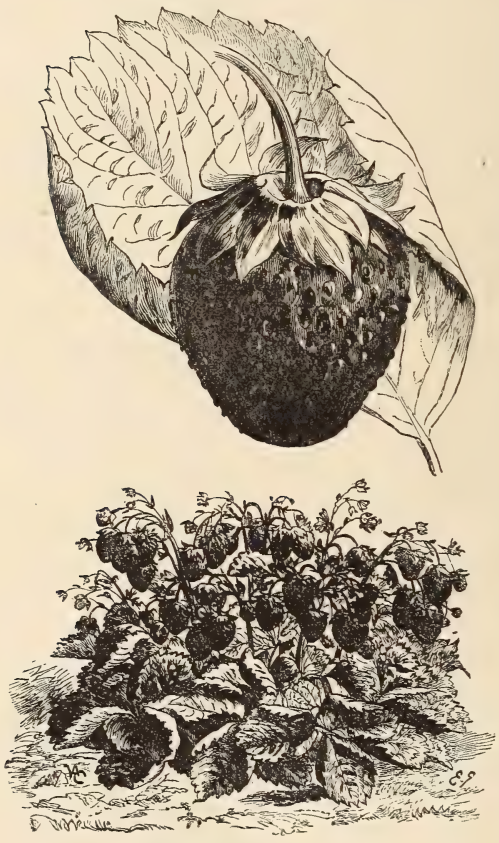
La Grosse Sucrée.—Plant of thick-set growth, hardy, and vigorous, bearing rather abundantly and half-late; fruit large, of an elongated heart-shape, and of a bright shining red colour; flesh pinkish white, very melting, abundantly juicy, and very sugary.

Latest of All.—Very late, ripening only in July. Fruit pretty large, oblong or knobby, not much coloured, green at

the end; flesh very firm, pink, juicy, and of good quality. In hot weather the fruit harden, become sour or are spoilt by mildew.

Leader.—A bushy, vigorous plant. Fruit very numerous, ripening late, large, oblong, hairy, rather soft; flesh not very juicy, acid, with a thick core.

Petit Pierre.—Very productive, ripening mid-season. Fruit medium-sized or small, but very numerous, long conical, lustrous, firm; flesh very red, juicy, and of excellent quality.



Princess Dagmar Strawberry.

Princess Dagmar.—A tall, vigorous plant, flower-stems rising well above the foliage. Fruit fairly abundant, medium-sized, oblong, blunt, deep red, very firm, ripening late and in succession; flesh pink, juicy, sub-acid, but of good quality.

Sir Charles Napier.—A very fine fruit, often flattened and broadened into cock's-comb shape; flesh firm, pink; a very good, vigorous kind, ripening in mid-season, often grown for the market.

Sir Harry.—A very fine variety, and really very rare, although many think they have it. Fruit large, heart-shaped, and of a bright red colour; flesh solid, juicy, sugary, and of a pale pink colour. Ripens half-late. This variety does not continue bearing long, and produces few runners.

Weisse Dame.—Low growing, with large leaves, pretty early, producing sometimes an abundance of oblong pink fruit; flesh tender, juicy, and very sugary.

LARGE-FRUITED PERPETUAL STRAWBERRIES

Fraisiers remontants à gros fruits.

Many years ago a cross made between some Pine-apple Strawberries produced a variety called "Bon Henry," from which kind, on being crossed in its turn later on with some large-fruited sorts, several new varieties were raised, among which were the

St. Joseph Strawberry.

"St. Joseph," the first really interesting Large-Fruited Perpetual Strawberry.

St. Joseph Strawberry.—A bushy, rather dwarf, and trailing plant; leaf-stalks short, green, hairy; leaves rounded, with well-defined teeth, bluish, somewhat glaucous green; flower-stems not numerous, developing in succession, short, with medium-sized, well-staminated flowers. Fruit medium-sized, heart-shaped; seeds small, numerous; flesh white, or rosy white, juicy and perfumed. Inferior as it is to many of the hybrid large-fruited sorts,

it produces an abundance of fruit during the whole summer up to the first frosts, an advantage which is not to be underrated. The fruit, if not so large as Dr. Morère or Noble, are of very fair size, and considerably larger than the finest Alpine Strawberry.

Jeanne d'Arc Strawberry.

The varieties *Rubicunda* and *La Constante féconde* may be considered as altogether identical with the St. Joseph.

Jeanne d'Arc Strawberry.—A variety raised a little later than St. Joseph, somewhat more vigorous and with rather larger fruit but resembling it in all other respects.

Saint-Antoine de Padoue Strawberry.—A much more vigorous

Saint-Antoine de Padoue Strawberry.

variety than the St. Joseph, taller and denser in growth. Leaves broad, slightly hairy; leaflets oval, toothed; flower-stems tall and stiff, flowers large. Fruit large, conical or cock's-comb shaped; seeds yellow, numerous and prominent; flesh very rosy, juicy and sweet. This fine variety is the result of a cross made between Royal Sovereign and St. Joseph. It is a more vigorous plant and produces larger fruit than the St. Joseph, though perhaps not so continuous a bearer, as it has usually ceased to produce by the end of July, until it starts afresh in the second half of September or early in October. It stands the heat and drought much better than the St. Joseph.

La Productive Strawberry.

La Productive. — Plant vigorous, tall; leaves light green; leaflets long, toothed, rather hairy, and often four together on one stalk, which is seldom the case with the other varieties; flowers medium-sized, and very early. Fruit, large, oblong, blunt, bright red, rather hairy; seeds projecting, except on the neck, which is long, smooth, and shining; flesh pink, very juicy and very sweet. The result of a cross between St. Joseph and Edouard Lefort, it is intermediate between the two. Its fruit is very like that of Edouard Lefort and its foliage like that of St. Joseph, without the blue tinge of the latter, and with the above-mentioned peculiarity of four leaflets being often borne on one leaf-stalk, which distinguishes it from all other Perpetual Strawberries. It is perpetual like the St. Joseph, the runners, almost as soon as fairly started, throwing up a flower-stem which bears fruit towards the end of summer. The first flowers appear very early in spring, and the first fruits ripen with those of the early varieties.

TANSY

Tanacetum vulgare, L. *Compositæ.*

French, Tanaisie. *German*, Gemeiner Rainfarn, Wurmkraut. *Danish*, Reinfang. *Italian*, Atanasia. *Spanish*, Tanaceto.

Native of Europe.—Perennial.—A plant forming a clump of very permanent growth. Stems annual, erect, rounded, usually not branching, and about 3 ft. high ; leaves oval oblong, but very much divided and very deeply cut into narrow segments, which are also divided into exceedingly slender toothed lobes ; flower-heads small, numerous, in compound, terminal, and rather crowded corymbs ; florets deep yellow ; seeds small, long, almost conical, with five prominent grayish ribs. Their germinating power lasts for two years. Two varieties of this plant are in cultivation—namely, the Common Tansy, which is the same as the wild plant, and a curled-leaved variety, the leaves of which, in addition to the ordinary use, may also be employed for garnishing, like those of the Curled Mallow.

Tansy ($\frac{1}{10}$ natural size).

CULTURE.—The Tansy, like the Wormwood, demands no cultural care, and a plant or two of it growing in the corner of the garden is usually sufficient for all requirements. It is generally multiplied by division in spring or autumn. By cutting off the flower-heads as they appear, the production of leaves is prolonged in the latter end of summer and in autumn.

USES.—The leaves are used for seasoning, etc.

GOLDEN THISTLE

Scolymus hispanicus, L. *Compositæ.*

French, Scolyme d'Espagne. *Dutch*, Varkens distel. *Italian*, Barba gentile. *Spanish*, Escolimo.

Native of Southern Europe.—Biennial.—A plant with a white and rather fleshy tap-root. Radical leaves oblong, usually variegated with pale green on a dark green ground, very spiny, and narrowed at the base into the leaf-stalk ; stem very branching, from 2 to $2\frac{1}{2}$ ft. high, furnished with sessile, decurrent, and very spiny leaves ; flowers of bright yellow, in sessile heads of two or three flowers each ; seeds flat, yellowish, surrounded by a white scarious appendage. Their germinating power lasts for three years. The seed is sown in March or April, in well-dug soil, in the same

manner as Salsafy, and the plants are afterwards treated in exactly the same way as Salsafy-plants. The roots may commence to be

Golden Thistle.

taken up for use in September or October, and will continue to yield a supply during the winter. The roots are eaten like Salsafy. They are often 10 to 12 in. long, and nearly 1 in. thick.

TARRAGON

Artemisia Dracunculus, L. *Compositæ.*

French, Estragon. *German*, Dragon. *Flemish* and *Dutch*, Dragonkruid. *Danish*, Estragon. *Italian*, Dragoncello. *Spanish*, Estragon. *Portuguese*, Estragao.

Native of Siberia.—Perennial.—A plant with numerous branching stems, bearing lanceolate entire leaves, which, like all the green parts of the plant, possess a very delicate, aromatic flavour, on which account they are very extensively used for seasoning. The flowers are white, in no way striking, and always barren, so that the plant must be propagated by division of the tufts or from root-cuttings. According to old horticultural books, the plant formerly produced fertile seeds, and if such was the case, it might be hoped that some day such seed may again be regularly obtained from it, but at present it does not usually produce any, and the seed which is offered for sale from time to time only produces plants which resemble the Tarragon in all its botanical characteristics (*Artemisia Redowskii*), but entirely

destitute of flavour. The Tarragon-plant flowers frequently, and the flowers appear to be well formed. Some fertile seeds might be accidentally produced, and if these were carefully gathered and sown, a regularly seeding variety might be raised; but if from any cause there should be a difficulty in multiplying Tarragon-plants by division, an excellent substitute may be obtained by growing *Tagetes lucida*, a Composite plant, which, although belonging to a quite different genus, possesses in its green parts almost exactly the same flavour as the true Tarragon.

Tarragon ($\frac{1}{8}$ natural size; detached leaf, natural size).

CULTURE. — Being a perennial, the Tarragon requires no particular attention. It is advisable, however, in severe winters without snow, to cut down the stems and cover the necks of the plants with a litter of manure or withered leaves, as, although originally a native of Siberia, the cultivated Tarragon-plant is somewhat liable to suffer in very frosty weather.

COMMON THYME

Thymus vulgaris, L. *Labiatæ.*

French, Thym ordinaire. *German*, Französischer Thymian. *Flemish*, Thijmus. *Dutch*, Tijm. *Danish*, Thimian. *Italian*, Timo. *Spanish*, Tomillo. *Portuguese*, Tomilho.

Native of South Europe.—Perennial.—A very small dwarf shrub with slender, stiff, branching, woody stems, bearing small triangular leaves, more or less deep green in colour on the upper surface and gray underneath. Flowers small, labiate, lilac-pink, in round or ovoid terminal clusters, which lengthen after flowering. The germinating power of the seeds lasts for three years.

CULTURE.—Thyme is usually planted as an edging in well-drained soil in a warm position. It may be propagated by division or cuttings, but is generally raised from seed, which yields vigorous plants. The seed is sown in April, either where the plants are to stand or in a seed-bed, from which the young plants are planted out in June or July, about 4 in. apart. It is advisable to re-make Thyme edgings every three or four years.

USES.—The leaves and young shoots are very often used for seasoning.

Two varieties of this plant are cultivated, namely, the Narrow-leaved, which has small gray leaves and is very aromatic ; and the Broad-leaved Winter, or German, Thyme, a somewhat taller and stronger plant, with larger leaves, a little more bitter than the other variety. The seed also of the Broad-leaved kind is one-third larger.

Common Thyme ($\frac{1}{8}$ natural size ; detached sprig, $\frac{1}{2}$ natural size).

Besides these, the Lemon Thyme (*Thymus citriodorus*, Pers.), a small under-shrub with trailing branches, the native country of which is unknown, is sometimes cultivated. Its flavour is very delicate and agreeable. Sometimes, also, especially in country places, the Wild Thyme, or Mother-of-Thyme (*Thymus Serpyllum*, L.), is used for seasoning. This is a native perennial plant, with a very slender creeping stem, bearing small oval-rounded leaves and erect terminal clusters of pink or violet-coloured flowers.

TOMATO, or LOVE-APPLE

Lycopersicum esculentum, Mill. ; *Solanum Lycopersicum*, L.
Solanaceæ.

French, Tomate. *German*, Tomate. *Flemish* and *Dutch*, Tomaat. *Italian*, Pomodoro. *Spanish* and *Portuguese*, Tomate.

Native of South America.—Annual.—The Tomato is a branching plant with a flexible stem, requiring artificial support to enable it to grow erect. The stem is thick, often woody, swollen, especially at the joints, and covered with a green skin which is rough to the touch. The leaves are pinnate, with oval-acuminate leaflets, which are slightly toothed on the margin, grayish on the under-surface, and often spoon-shaped or even with the edges rolled upwards. Flowers yellowish, in axillary corymbs ; fruit large fleshy berries, variable in shape and colour ; seed white, kidney-shaped, very much flattened, and shagreened or rough on both sides. Its germinating power lasts for four years.

CULTURE.—It is only in the south of Europe that the Tomato can be perfectly grown without the aid of artificial heat. In the climate of Paris, the seed, for an ordinary or main crop, is generally sown in a hot-bed, about the latter end of March. The seedlings are pricked out into another hot-bed three weeks or a month afterwards, and are finally planted out about the end of May, from

20 to 32 in. apart, according to the variety. As soon as the plants have grown from 16 to 20 in. high, each of them should be supported either with a single stake, or with a series of stakes fastened together and forming a kind of trellis, upon which the branches of the plant are tied. The latest varieties would be all the better for being planted at the foot of a wall or other shelter with a warm aspect. In these varieties, too, it is advisable to limit the production of the fruit to a certain number by pinching off all the late flowers. It is also a good plan, sometimes, to pinch some of the shoots ; but that should be done with discretion, so as not to leave the plant too bare of leaves. Under this mode of culture, the earliest varieties will commence to yield fruit in the course of August, and produce them all through the autumn. When frosty weather approaches, any fruit that are full-grown but not yet coloured may be cut off, branches and all, and stored in a dry room, where they will duly ripen. Ripe Tomatoes may be obtained as early as the latter end of April by means of forcing. In this case the plants are grown entirely in hot-beds. The first sowings are made in September, but more usually in January. The seedlings are pricked out, and also permanently planted out in hot-beds, always under the same conditions, four plants to each light. As the plants require a good deal of heat, the beds should be surrounded with linings of manure, which can be renewed at pleasure. Plants thus formed are usually not allowed to bear more than two branches, which are attached horizontally to a wire or a strong cord running from one end of the bed to the other, and as near the glass as possible. Until the fruit is formed and commencing to ripen, other plants are usually grown in the hot-beds along with the Tomatoes, thus utilising the heat and also the space which is not yet filled up by the principal crop.

In Great Britain of late years the culture of Tomatoes has spread very much, though far from, as yet, being able to meet the demand for the fruit. The climate is one of the worst possible for Tomatoes, yet, notwithstanding, our gardening resources and skill are such that much excellent fruit is grown. To raise it, however, is not so simple as in America, where over a vast range of the continent the Tomato is one of the most easily grown field crops. Some general idea of the most successful methods pursued in British gardens is therefore desirable here. Those situated in the southern counties of England and Ireland have a considerable advantage in Tomato culture over those in the north. Mr. Hobday, growing them in a by no means favourable district, may be taken as a trustworthy guide for private garden practice, which, however, varies much and is improved year by year :

" Sow the seeds in February or early in March in pots or pans ; cover lightly with sand or sandy soil, and place in a hot-bed near the glass. When the young plants appear, move them to a warm house, where they will be near the glass, to get hardened by light and ex-

posure. Pot off either singly or two in a pot, standing at opposite sides of the pot, so that when the time comes to plant out the ball may be divided through the middle, each plant taking its share; and but little check need be given. After the plants are potted off they may either be taken back to the hot-bed for a few days, or be kept in a warm, close house till the roots begin work again, when they should be moved to a light place, in order to give strength. Plants that are well cared for in their youth begin to blossom and bear fruit weeks before those which are dragged up in vineries or in situations away from the full light, and in our short, often sunless, summers this is a very important matter. If necessary, the plants should be shifted on into larger pots, though a very little check when they have made some progress will do them no harm. It will simply have a hardening effect upon them. As soon as the weather is settled in May, or say about the third week, plant out. In the south of England Tomatoes will succeed in any warm position, but they cannot have too much heat in our climate, and though we may plant in any warm situation, even away from a wall, it must not be forgotten that the warmest positions at the foot of a south wall are the best.

"That mode of training is the best which ensures early ripening rather than heavy crops that will not ripen, and this early ripening can be best attained by confining the growth to one or two main stems, and these main stems should have been started when the plants were young, by pinching out the leader. A two-stemmed plant will require 2 ft. of space or a little more; a plant having only one stem will not require more than 15 in. As soon as planted, and the soil settled round them by watering, a tie should be placed to each stem. If against a wall, a nail and shred may be used, but the latter should be placed loosely round the stem to allow space for swelling, which it will do considerably. If planted on the open border, a strong stake 4 ft. long should be placed near each stem, and a piece of matting placed round the stake and fastened to it first, and then the stem of the plant should be loosely fastened also. In the after-training all side shoots should be rubbed off as they appear (this will involve weekly attention), and all the strength of the plant directed upwards into the main stem. Sometimes the leaders are pinched when the first cluster of flowers appears. This throws strength into the blossoms and the next shoot, which breaks away from the leader and grows on till another cluster of blossoms is put forth, when another pinching of the leader takes place, and so on, a check to growth being given as each cluster of fruit is formed. I do not think it really matters much whether these pinchings or checks are given or not, for I have proved that a plant which is allowed to grow straight onwards, unstopped, will bear as much fruit as the one that is pinched. All that is gained by the pinching is the confining of the growth to a smaller space, and if the wall or the fence on which the plants are to be trained is a very low one, then pinching may be useful, but otherwise it is not of much value. Beyond the pinching and training the summer culture is almost nothing. Weeds, of course, must be kept down, and if the summer should be hot and dry, mulching and watering may be beneficial. In cold, wet districts the plants must

occupy a south wall, and, if possible, lay a mound of soil (the sweepings of the potting-shed, or the old soil saved from the renovation or renewal of Vine or Peach borders will do) against the foot of the wall, and plant in the mound. When the fruits are swelling rapidly and approaching the ripening stage, gradually remove a few of the leaves to let in the sunshine, and in autumn, when frost is expected, the late fruits will ripen off if gathered and placed in a warm kitchen, or in a warm position anywhere.

"UNDER GLASS.—Given a light house and a night temperature of 60°, and the Tomato may be had all the year round. In the open air, in many places, it is a precarious crop. Very frequently the fruits refuse to ripen, and when they get the colour they lack the flavour of the fruits grown and ripened under glass; and very often, too, the fruits fall a prey to a disease not unlike in character and appearance to the disease which causes such destruction to its relative, the Potato. Under glass I have had one set of plants go through the year without renewal; but young plants should be raised at least every year, as young plants produce the finest fruit, and they are so easily raised that there is nothing gained by a prolongation beyond a year. The plants may be raised from seeds, but I like cuttings best, as I think they come into bearing earlier, and the plants are so healthy and strong in both cases that one need not consider the question as to whether we lose or gain in vigour. The seedlings are sometimes over-vigorous, and require curtailment at the roots in order to moderate their exuberance. The best time to take cuttings is in summer, say in August, and they will strike anywhere—in a shady place, in a frame, or under a hand-light best, or on the shelf in the greenhouse—in fact, anywhere. They are best put into single pots of small size, and shifted into larger pots as required, until the time comes to plant them out. If struck early in August and grown on steadily, they may be brought to a fruiting condition in pots, and be transferred to the Tomato-house in time to begin bearing early in spring, when fruits are most valuable; so that really there need not be any break in the crop, as the crop in possession of the house will go on bearing till the time of its removal, if carefully managed. To do them justice they must have

"A LIGHT HOUSE.—It may either be span-roofed or a lean-to, but it cannot be too light. In either case it should be wired, the wires being about as close to each other as would be necessary for vines, and about 9 in. from the glass. The provision for the roots may consist of narrow brick pits, or boxes, or large pots. Where convenient, I think the narrow pits are best, but they need not be more than 18 in. wide, and 2 ft. in depth. Place 6 in. of drainage in the bottom, fill it with turfy loam, inclined to be rather sandy than heavy, and top-dress when necessary, giving manure-water if it should be needful to swell off a crop readily.

"The best way to train is to pinch out the leader when the stems are 6 in. high, and from the shoots which break away train up two. These will form the main fruiting stems, and should be trained up the roof, 15 in. apart. All side shoots should be rubbed off, and when the first cluster of flowers show, pinch out the leader. Select the next leader which breaks away, and nip

out the point of that also when a truss of blossoms has been evolved, and so on till the shoot reaches the top of the house. The close pinching must be persisted in to throw the strength into the plant; and a few of the main leaves may be removed when the fruit begins to ripen, to let in the sun to colour them. As the bottom fruit begin to ripen and are taken off for use, a shoot here and there may be permitted to grow, and these in turn will develop blossoms, when, if the same pinching process be adopted, a successional crop will be started which will prolong the season." *

TOMATOES WITHOUT MANURE.—Mr. Muir is inclined to think we use too much manure in the case of Tomatoes. "Almost every one who has anything to say on the culture recommends at least one part of the compost to be manure from the stable or cowshed, and plenty of plants, and fruit too, are produced under this treatment, but it must be owned that there is also a great deal of superfluous wood, and fruits in many instances are often neither so perfect in form, large in size, nor so numerous as they might have been. Three parts of the time spent in cultivating Tomatoes are often devoted to cutting back and thinning out the shoots, work which surely could not be over and above good for the plants. The majority of Tomatoes make a great deal of unnecessary wood before any fruits are formed, and many of them grow so freely that they do not fruit until their feeding supplies have become somewhat exhausted. My idea of a good bearing Tomato-plant is one which begins to fruit about 10 in. from the ground, and continues to bear closely as far up as the cultivator chooses to lead the main stems. The fruit should be numerous, and the superfluous growths in no way predominating. It is, however, a difficult matter to have Tomatoes in this condition where much manure is used, as the manure has a tendency to induce the plants to make wood rather than fruit. For some years we have been using less and less manure in Tomato growing, and in several instances we have dispensed with it altogether, and found the crops to be altogether more satisfactory than hitherto. The growths were short and robust, and the fruit formed in large quantities and swelled off and coloured beautifully. Early in summer we are in the habit of planting a Tomato here and there along the walls wherever a small vacancy occurs, and before planting we used to fork in a quantity of manure to assist them, but now no manure is employed, and the crops are good. The very poorest of soil without any manure might not answer, but ordinary potting turf will be found to grow them to the highest state of perfection."

Mr. Muir holds that, even in England and Wales, "Tomatoes, when properly managed, are far more prolific in the open air than under glass. They begin to bloom and fruit almost at the ground, and the stems throw out bunches of flowers every few inches and yield very fine crops. On some of our clusters we have counted as many as twenty, and where they were thinned out to single fruits, some have weighed 14 ounces each. The flavour, too, of those grown and ripened during the harvest time is much superior to that of those ripened under glass, especially in a close atmosphere. In short, open-air Tomatoes are so good and easily produced, that I would advise all who have a wall with any vacant

* Defoliating Tomatoes, see p. 773. Tomato Diseases, see pp. 780, 781.

Tomatoes for Winter use, see p. 774.

spots on it to fill them up with this esculent. During May is the best time to plant. They may be grown and hardened off along with the bedding Pelargoniums, and be planted out at the same time. Many who know them to be gross feeders think they are doing right in giving them a rich mixture to root into; but that is a mistake. The harder and dwarfer the shoots are the better. When grown in poor soil they flower profusely, and become most prolific. As soon as plenty of fruits have been formed—as form they undoubtedly will on all plants grown in nothing but pure loam—supply them with doses of liquid manure. Pick off all young shoots as they form, and a heavy crop will be the result. Wherever we have a bare strip on any part of our walls—and these occur often between trees—we fork in a few shovelfuls of chopped-up turf, and in this plant Tomatoes. Many of the plants are pruned in to one stem only, and none of them are allowed to have more than two; in fact, it is cordons and not bushes on which we depend for a profitable crop. When in poor soil, they do not make side shoots rapidly, but they should be looked over frequently to take these off and to nail up the main stem."

In all the colder parts of these islands, and where Tomatoes do not thrive in the open air, we have a great, but often neglected, substitute for a good climate in the many pits and frames emptied of bedding and other plants during summer and early autumn. Mr. Iggulden's practice is as follows:—"I prefer pits with a single hot-water pipe round, and which are oftentimes devoted first or during the winter to Bouvardias, then to Kidney Beans during the spring months, and subsequently to Melons or Cucumbers. If such a pit is available it may well be devoted to Tomatoes, and, failing this, a cold pit or ordinary Potato-frame will do nearly as well, as it is protection from rain rather than heat that is indispensable during the summer and autumn. Supposing these pits and frames, in addition to perfecting the crops of Potatoes, are also required for the preparation of summer bedding plants, the best plan will be to have a number of strong Tomato-plants, with perhaps a cluster of fruit already set, ready to plant, say, by the end of May.

"A bed previously devoted to early Potatoes just suits Tomatoes, and needs no preparation beyond the addition of a little manure to the soil. If a bed has to be made specially for them, a quantity of old heating material may be used, adding to this sufficient fresh to cause the whole to become just warm enough to give the Tomatoes a good start. Better, however, a small bed of half-decayed manure than a heap of material that has heated itself dry, as in the latter case the small amount of loamy soil on the surface of the bed is all the plants would have to support them. The depth of the manure in the pits must be regulated according to the depth of the walls, but any amount from 1 to 3 ft. will be ample, as the frames can be raised. The beds may be made of any height, so long as the heap does not become very hot. Over the manure place a layer about 1 ft. in depth of rich loamy soil, and if the loam is rough and fibrous, so much the better. Keep the lights of the frames or pits on closely, and when the sunshine or bottom heat has warmed the soil, plant at once.

"In pits and deep frames a considerable number of plants may be

fruited, these being grown with single stems and staked in a sloping direction; while in shallow frames a few plants may be trained and fruited somewhat similar to Cucumbers or Melons. I prefer, however, in all cases where there is a depth of 2 ft. or more at the back, to adopt a combination of the two plans; that is to say, to cover the back wall or boards, as the case may be, with a number of obliquely trained plants, and the beds with a few spreading or trailing plants. I find where numbers are in a pit or frame, say about 15 in. apart and necessarily staked in a slanting direction, they are apt to shade each other; but if the back walls or boards are covered with plants, these yield surprisingly without interfering with or being injuriously affected by those spreading on the ground. In frame culture it is imperative that the cultivator be able to put on the lights at certain times, and for this reason the plants cannot well be too dwarf. Now, there are few or no really dwarf sorts to be had generally, with the exception of Vilmorin's Dwarf, but the plants may easily be dwarfed by burying the stems, and as these quickly emit roots, the plants are also strengthened by the process. I do not recommend burying the balls deeply; the object is best attained by trimming off the lower leaves of the plants, and then, after some of the soil has been thrown out, lay them in different directions, so as to place all the heads where required, the soil being then returned. This will be found a better plan than either layering or striking the tops in order to secure dwarf plants, and laying them all in before covering the balls and stems is the only way to properly plant. The balls should be moist when planted, and are best slightly sunk and marked with pegs, so that they can subsequently be kept watered till such time as the roots are spread in all directions. The frames should be kept rather close till the plants have recommenced growth, when air should be given freely, throwing off the lights during hot weather. Close early in the afternoons till such times as the fruits are commencing to ripen, when a little may be left on during warm dry nights. A stout stake should be placed to each plant, the latter having all side shoots kept rubbed out, and be stopped beyond either the second or third large cluster of fruit, or according to the head room. If what I term the combination system is adopted, those plants nailed or otherwise trained to the back of the frames should be laid down or dwarfed; while about two plants in the centre of each light should also be planted in a sloping direction, pegged down and encouraged to spread, the former to have all side shoots removed from the one or more main stems that may be laid in, and the latter must be freely thinned out where at all crowded, the laterals being depended upon for fruiting, and are best raised from the soil with short stakes, or the clusters of fruit may be laid on pieces of slates or roofing tiles. Wherever the stems are pegged down they will strike root, to the obvious benefit of the crops.

"Disease and its Prevention.—It is when the foliage is wet, and especially during dull showery weather, that the fungus effects a lodgment on it, and this happens whether the plants be dry at the roots or not. Consequently to withhold water from the roots, or to increase the bottom heat as a preventive of disease, is a mistake. Keep the foliage dry with the aid of the lights, never syringe over-

head, and do not leave air on when the nights are what are termed muggy—that is to say, warm and moist. It is this kind of weather that most favours the spread of the Potato fungus, and during its prevalence those growing Tomatoes in frames have the advantage over open-air cultivators, as they can and ought to keep their frames dry and close. Where the pits are heated, a little heat should be turned on during cold or wet weather, and again when it is desirable to hasten the ripening of the late fruit. The late fruit in cold pits and frames will generally ripen if cut in bunches and hung up either in a forcing or warm house or in the kitchen of a dwelling-house."

Market-Garden Culture.—Outdoor Tomatoes in market-gardens are not planted against walls, as is done in private establishments; but a warm situation, convenient to water, is selected for them in open positions, and in such positions they produce abundance of large, well-coloured fruit. The earliest planted ones are generally put in the most favourable positions, such as a warm border, or on either side of "spent" Mushroom ridges, where they are well sheltered. If planted too early, they are liable to be cut down by late spring frosts, in which case entire removal and replanting is the remedy usually applied; if the damage be not too great, however, the sound eyes produce shoots that eventually carry heavy crops. Early in spring the seeds are sown broadcast in a frame, in which a bed of fermenting manure, covered with 6 in. of light soil, has been placed. These frames are protected during cold weather by a covering of litter or mats placed over the sashes; but during favourable weather this is removed and air is given, in order to render the young plants as strong, healthy, and stubby as possible. If the plants come up too thickly, they are thinned, and when they are about 2 in. high they are pricked out into 4 in. or 6 in. pots, two plants being generally put into each pot. Frames are sometimes prepared by placing in them fermenting manure in the form of a bed to the depth of 15 in., well trodden down, on which are placed 8 in. of soil, and in such beds pots filled with mould are plunged up to the brim. The plants are then dibbled into the pots, and the frames shut up and kept close for a time, until fresh root-action has taken place. They are afterwards kept freely ventilated until May, when the sashes are entirely removed during the day, and replaced and tilted up at night and in wet weather. During the last week in May the plants are thoroughly hardened off, although still unable to endure even a slight frost, and they are planted in warm positions, as before stated, on Mushroom ridges or similar places. As soon as the fruit has attained its full size, the leaves are turned aside so as to expose it to the sun, by which means it ripens more readily, and is of better colour than when shaded. The ripe fruits are generally picked off twice a week, leaving the greener ones a little longer, so as to mature themselves; but should frost come, all fruits are picked off, and spread out on hay in a frame under sashes, where they eventually become red.

The Potato disease has often played havoc with Tomatoes in the market-gardens of London during recent years. The winter and early supply is to a great extent grown by special growers in the warmer parts of Sussex, and also in the Channel Islands.

USES.—Every year Tomatoes are becoming more used for cooking and as the best of salads. The manufacture of Tomato preserves and Tomato sauce forms a very extensive branch of industry in the south of France.

Early Large Red, or Powell's Early, Tomato ($\frac{1}{12}$ natural size; detached fruit, $\frac{1}{3}$ natural size).

Large Red Tomato (English synonyms: Large Red Italian, Orangefield, Mammoth, or Fiji Island Tomato).—Plant vigorous growing; leaves rather broad, dark green; leaflets somewhat puckered and folded at the edges; fruit in bunches of from two to four, very large, flattened at the ends, irregularly ribbed, 3 to 4 in. wide, 2 in. or less deep, and a fine deep scarlet. A very productive variety, and the most extensively grown in the south of France, whence the fruit is sent to all the markets, while a considerable quantity is made into preserves. The fruit ripens rather late to suit the climate of Paris.

Early Large Red, or **Powell's Early, Tomato.**—Plant rather slender, with leaves almost always curled, and leaflets folded back on the upper surface, giving to the plant a half-faded appearance; fruit very numerous, in bunches of from three to six, ribbed like those of the preceding kind, but seldom exceeding $2\frac{1}{2}$ to $3\frac{1}{5}$ in. in diameter, and $1\frac{1}{5}$ to $1\frac{3}{5}$ in. in depth. It ripens a fortnight or three weeks earlier than the preceding kind, and is well adapted for climates similar to that of Paris. This variety is one of those which are most extensively grown.

Early Dwarf Red Tomato.

Early Dwarf Red Tomato.—A sub-variety of the preceding kind, from which it differs in having the stem shorter and branching, and bearing fruit closer to the ground, its other characteristics being the same. Its dwarfer habit renders it easier to cultivate, and especially more suitable for forcing. When grown under the same conditions as the other, it commences to ripen its fruit two or three days earlier. The fruit is somewhat more flattened, more ribbed, and smaller than that of the preceding kind, but the difference is very slight.

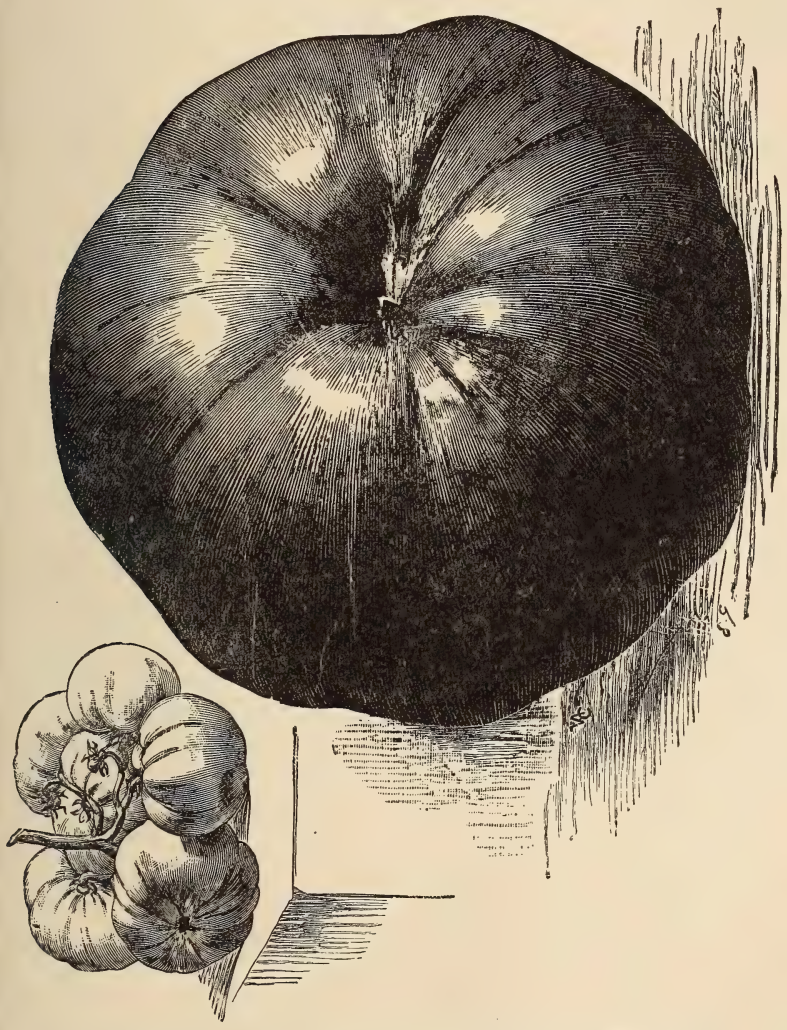
Tree Tomato.—This variety, raised in the gardens of the Comte de Fleurieu at the Château de Laye, near Villefranche (Rhône), differs from all others in having a very short stiff stem, which grows perfectly erect without any support and bears leaves which are

Upright Red Laye Tree Tomato.

very much curled, reticulated, and almost black-green. The fruit resembles that of the Large Red Tomato and ripens nearly as late. It would be very interesting, and, no doubt, would not be impossible, to raise different varieties of Tomatoes which would combine the best features of the ordinary kinds, as regards shape and earliness, with the stiff, firm, and thick-set habit of growth of the present variety.

Belle of Massy Tomato.—A vigorous, half-early, very productive variety, of dwarf growth, not exceeding 3 ft. 3 in.; stem very thick; leaves smooth, much divided, with purplish stalks. Fruit slightly ribbed, produced in clusters, large, thick, resembling somewhat Atlantic Prize; flesh firm and delicate, not liable to split when ripe. Not quite so early as the sort just named, but ripening nevertheless very early and producing beautiful fruit of good keeping quality.

Laxton's Open-air Tomato.—A fairly vigorous not very tall plant ; leaves grayish, light, somewhat crimped. The fruit, produced in bunches, is rather irregular in shape, but not ribbed, and quite flat

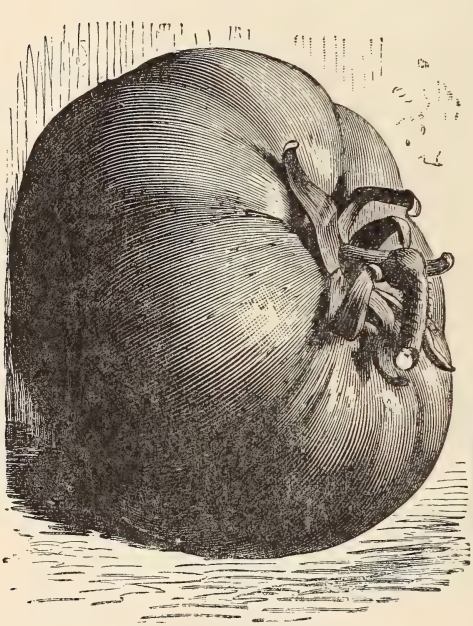


Belle of Massy Tomato.

on the side opposite the stalk ; it is a little more than 1 in. by $1\frac{1}{2}$ or $2\frac{1}{2}$ in. in diameter, and when ripe a very vivid scarlet. The flesh is thick and well flavoured. Perfectly suited for outdoor cultivation, it is as early as the Early Dwarf Red Tomato, but not quite so compact in habit.

Atlantic Prize Tomato.—The best open-air Tomato for producing large crops ; it is vigorous, and as early as a heavy cropper can be. The fruit are numerous, rounded, slightly flattened at the lower end, fleshy, and of excellent quality, quite smooth, and dark scarlet-red. The leaves are curled like those of the Large Early Red Tomato.

Marvel of the Market Tomato.—A vigorous bushy plant, 3 to 4½ ft. in height ; leaves large, dark green ; leaflets rather large, rounded, reticulated ; fruit round or slightly flattened, a little over



Laxton's Open-air Tomato.

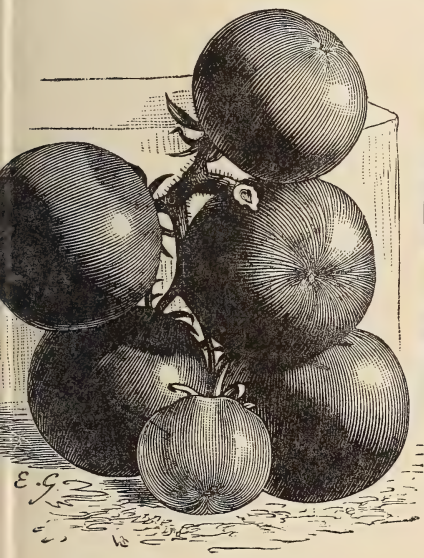
Atlantic Prize Tomato.

3 in. in diameter, smooth, bright scarlet, in large bunches ; flesh pink. A very productive and vigorous variety, not liable to disease. The fruit are medium-sized, keep and travel well without splitting or deteriorating, and especially suited for market supply and export.

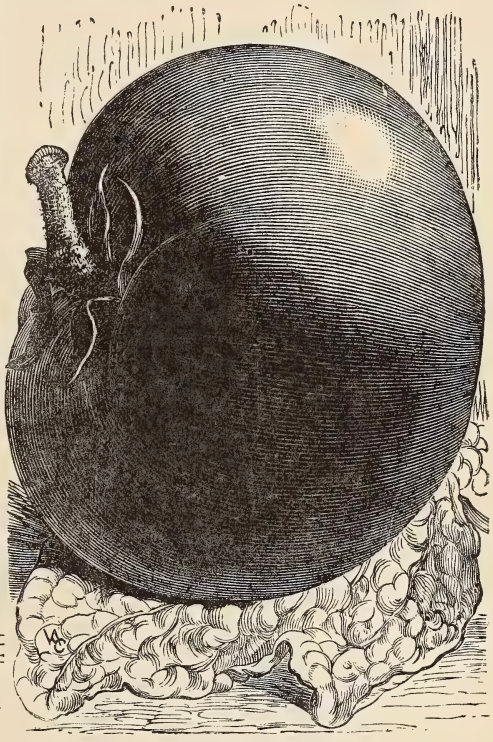
Chemin Red Early Tomato.—An excellent variety raised near Paris ; a tall, vigorous, early-flowering plant ; the foliage is slightly crimped at the base of the stem, but entire and rather curled towards the top. The fruit, which set readily, are sometimes produced in bunches of seven or eight, but they attain to better size when only three or four on a bunch ; they are

almost round, or slightly heart-shaped, as thick as broad, flattened very seldom, and only when very large. This thickness and solidity of flesh gives to the Chemin Tomato the prominent place it occupies. It is productive, and one of the best for canning. Its relative earliness suits it to the climate of Paris. In the south of France its long productivity and the beauty of its fruit are much appreciated.

Purple Champion Tomato.—In habit intermediate between the Upright Tree Tomato and the other varieties; the stem is short, stout, and erect, unless overloaded with fruit. Leaves dark green, stiff, much reticulated and crimped. The fruit is medium-sized, very smooth, well



Marvel of the Market Tomato.

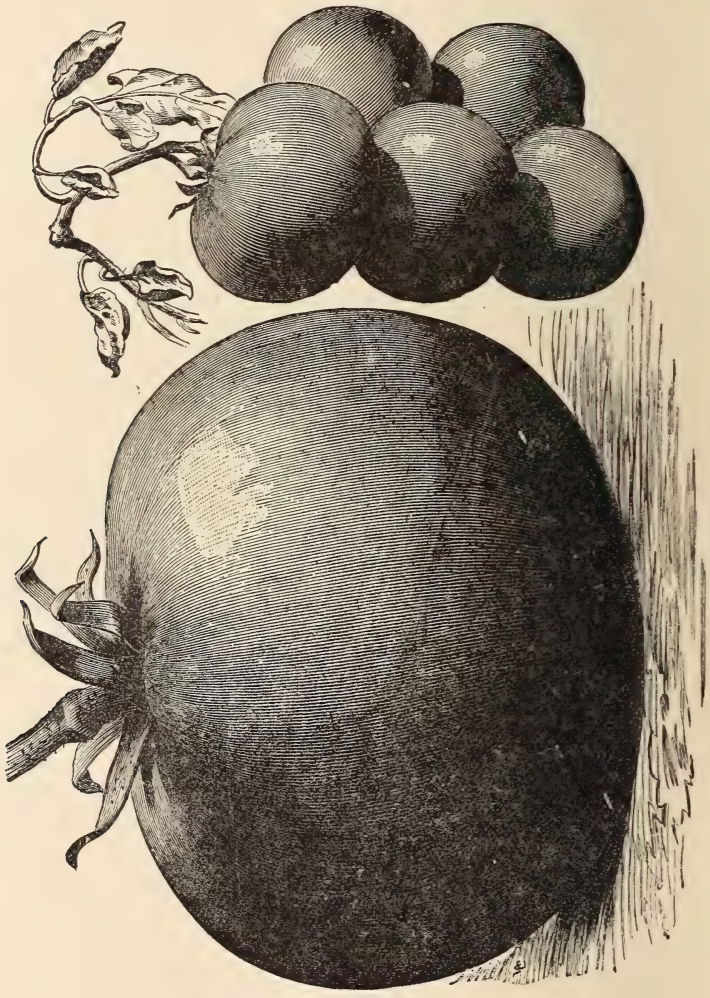


Champion Tomato.

shaped, and rather flattened. A half-early variety, vigorous, productive, and fairly hardy. Its only defect, to French taste, is its purple colour.

Scarlet Champion Tomato.—Obtained in France by selection from the Purple Champion Tomato and has all the characteristics of the latter, differing from it only in colour, which is a beautiful scarlet-red, for which reason it is fast superseding the Purple variety in France.

Perfection Tomato.—A very handsome variety, intermediate between the Trophy and Hathaway's Excelsior, with smooth leaves. More productive than Hathaway's Excelsior, with larger

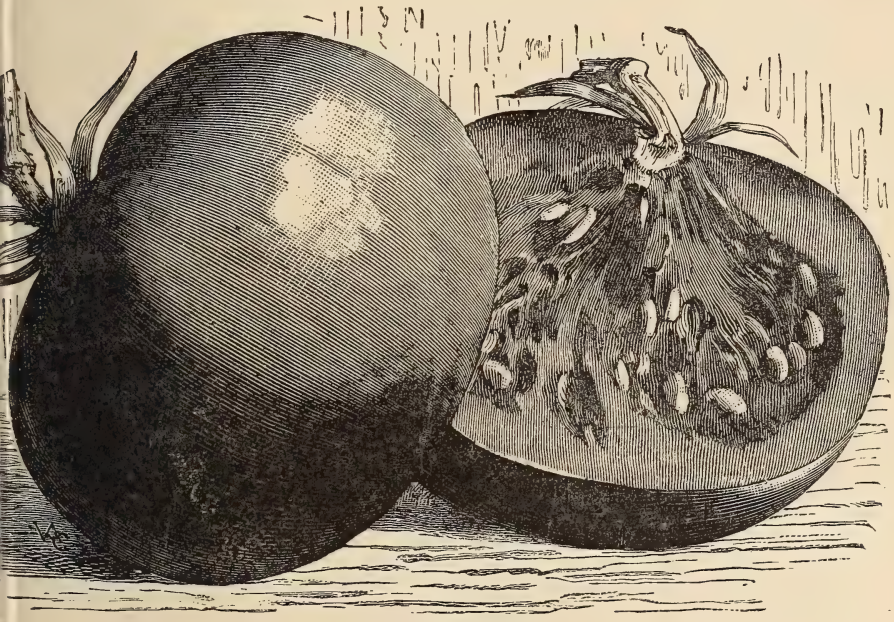


Chemin Red Early Tomato.

and finer fruit, it is superior to the Trophy in its greater earliness and the regularity with which it ripens its fruit in the climate of Paris. The fruit is a fine deep scarlet, quite smooth, thick, more or less flattened, very solid and fleshy, well suited for canning. Ripens about mid-season.

Trophy Tomato.—Plant large, tall, and vigorous, like that of the Large Red Tomato, but still later than that variety; fruit flattened at both ends, regularly rounded or faintly sinuated, from about $2\frac{1}{2}$ to 4 in. in diameter, and from $1\frac{3}{5}$ to nearly $2\frac{1}{2}$ in. in depth. It is difficult to keep this variety absolutely pure, the fruit always having a tendency to revert to the ribbed shape, and the same plant will often be found bearing fruit which are smooth and others with ribs more or less distinctly marked.

The *Stamford* Tomato, raised by Mr. Laxton, the well-known



Perfection Tomato.

English grower, comes very near this variety. It has rather smaller fruit, but more regular in shape than those of the Trophy Tomato, and the flesh is thicker. It is intermediate between the Trophy and Hathaway's Excelsior Tomato.

There has been grown in the neighbourhood of Paris, under the name of *Tomate Rouge Grosse Lisse à Feuilles Crispées* (Smooth Red Curled Tomato), a variety with very smooth fruit, much flattened at the lower end; owing to their depressed shape they lack thickness and consequently weight; and besides, they ripen very late, a serious drawback where, as happens too often, only one half of the Tomatoes ever attains complete maturity. The early

Chemin Tomato is much superior to this variety, and will no doubt supersede it entirely.

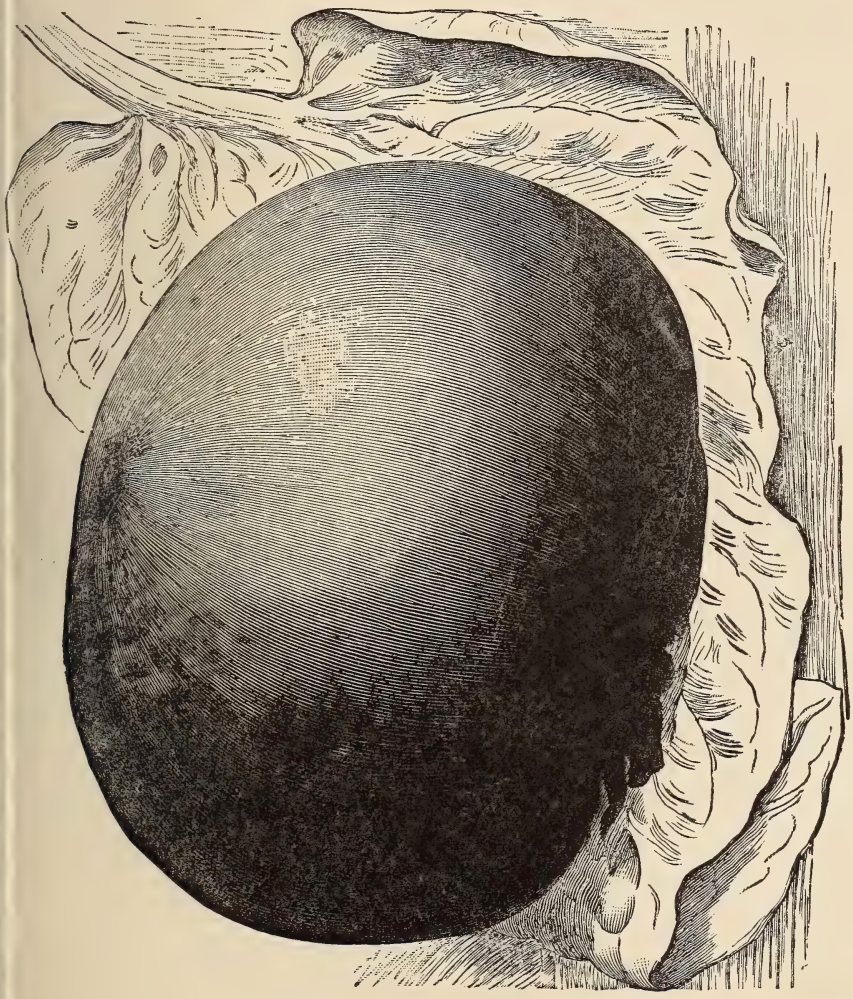
Mikado Purple Tomato.—A tall, vigorous, rather late variety, much more suitable for warm climates than for Paris. Stems very tall and stout, leaves of a special character, with only a few leaflets, but those unusually large. Fruit very large, smooth, flattened, but very thick and purple, like the Acme Tomato.

Trophy Tomato.

Mikado Scarlet Tomato.—The principal merit of the Mikado Purple Tomato is that it has produced the Scarlet form here described. It has all the good qualities of its parent, besides greater earliness and brighter colour.

Scarlet Ponderosa Tomato.—The result of a selection made in Europe among the purple-coloured Ponderosa Tomato, which it has entirely superseded. The fruit has the same enormous size, is quite smooth, and a colour more in harmony with French taste.

Golden Queen Tomato.—Fruit large, smooth, flattened, bright yellow, sometimes tinged orange on the sunny side. A fine productive half-early Tomato, but, like all the yellow Tomatoes, more

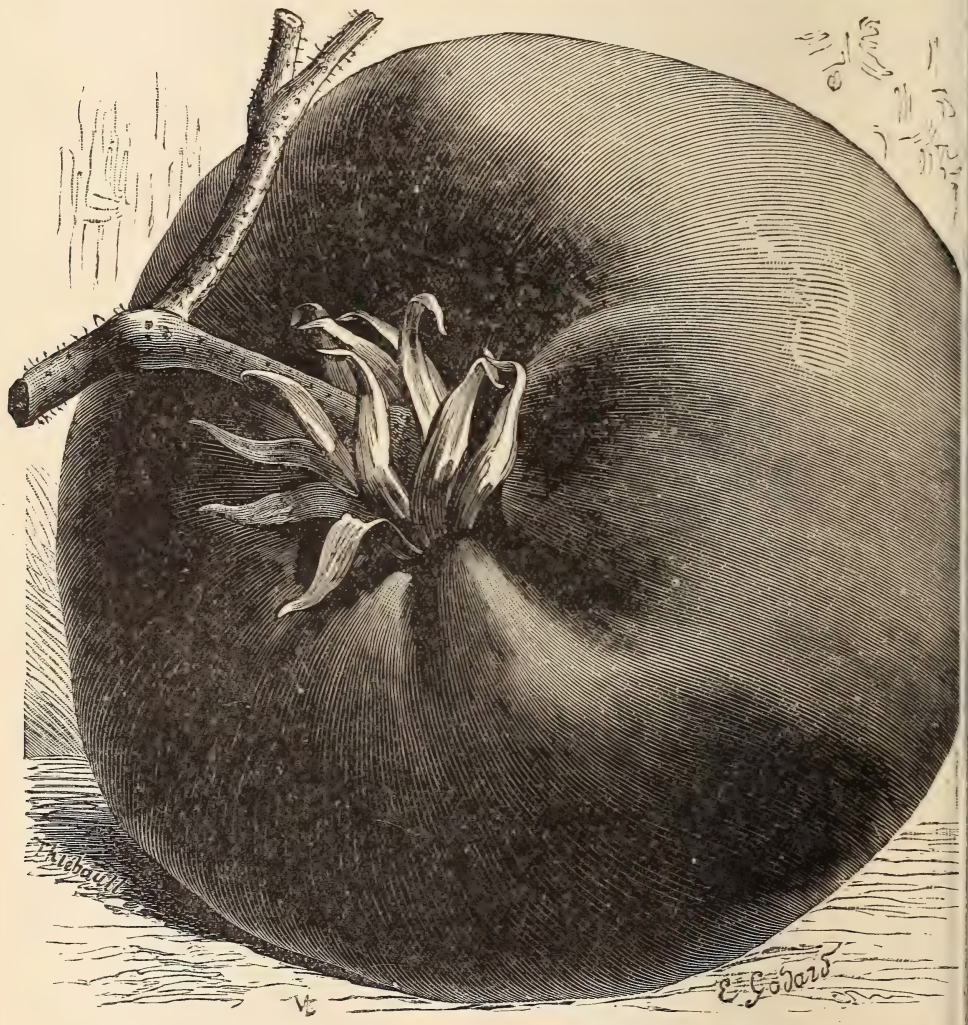


Mikado Scarlet Tomato.

curious than useful so long as consumers continue to favour the red varieties.

Apple-shaped Red, or **Hathaway's Excelsior, Tomato.**—Plant of medium vigour, about the same size as the Large Early Red Tomato-plant, but with the leaves less curled ; fruit almost spherical,

quite smooth, 2 in. or more in diameter, and borne in bunches of from three to six. They ripen a little earlier than those of the Large Red Tomato, but some days later than those of the



Scarlet Ponderosa Tomato.

Large Early Red variety. The flesh is more solid than that of the ribbed Tomatoes, and the fruit keeps well when the skin is not cracked or otherwise injured.

Apple-shaped Purple, or **Acme, Tomato.**—A very handsome, productive, and rather late variety, bearing some resemblance to the preceding kind in the shape of the fruit, but differing from it in being larger, and a darker, almost violet, tint when ripe. The bunches usually do not contain more than from two to four fruit

Round Yellow Tomato.

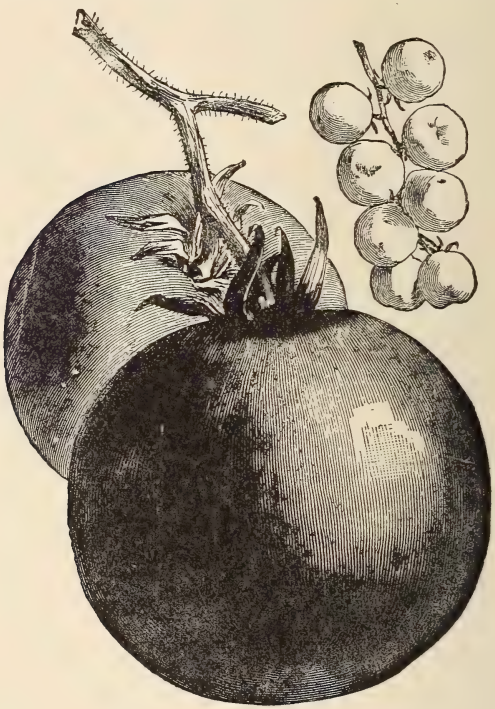
each, and these, although very round, are somewhat broader than deep.

The American variety *Criterion,* which is almost of the same colour as the preceding kind, differs from it in being of a slightly elongated-ovoid shape. Its fruit is about 2 in. long and $1\frac{3}{4}$ in. in transverse diameter.

King Humbert Tomato.—A very distinct kind, the fruit being of a shape unknown in Tomatoes so far. It is tall, vigorous, and prolonged in growth, with flowers in numerous bunches. Fruit

oblong, square rather than round, often in long clusters of ten to twelve, very fleshy, ripening regularly in succession as long as the temperature allows. Under glass it produces abundantly and long.

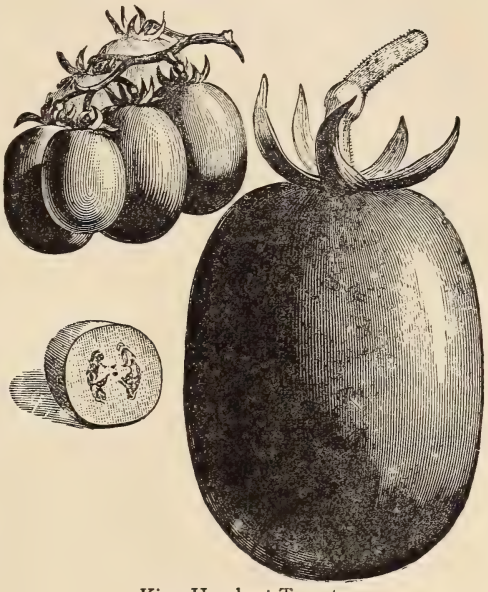
Pear-shaped, or Fig, Tomato.—A very vigorous and rather early variety. Stem 4 ft. to 4 ft. 3 in. high ; leaves numerous, not curled, rather broad, and deep green ; fruit numerous, scarlet, pear-shaped, more or less narrow at the base, about 2 in. long and $1\frac{1}{5}$ in. broad



Apple-shaped Red Tomato.

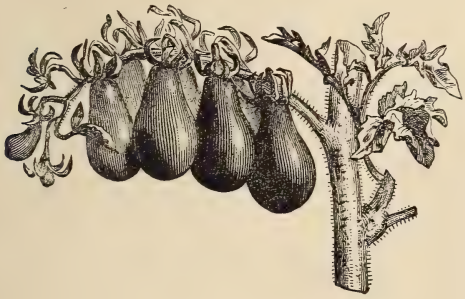
in the thickest part, borne in bunches of from six to ten A well-grown plant may be allowed to carry from twenty to twenty-five bunches. In the south of Europe, especially near Naples, a great number of Pear-shaped varieties of Tomatoes are grown, among which this strain appears to us most worthy of note for earliness and productiveness. The Pear-shaped kinds are considered to keep better than any others. At Naples the plants are pulled with their fruit, and hung under cover, in the autumn ; the fruit are then picked as they are wanted during the winter, or even

until the new crop is ready. The English variety named *Nisbett's Victoria* should be referred to the Pear-shaped section, although it is a rather distinct form of it. This Tomato is more of a long egg shape, and broader at the lower end than a true pear shape. The fruit are borne in bunches of from four to eight, and the plant, which is tall, stout, and half-late, is remarkable for the luxuriance of its foliage.



King Humbert Tomato.

Cherry Tomato.—Plant comparatively hardy, very productive, and vigorous; stem about 4 ft. high, thick and stout, very branching, and bearing an abundance of very green, flat leaves. The flowers commence to appear a week later than those of the Large Early Red Tomato. Fruit spherical or slightly flattened, scarlet, about 1 in. in diameter, and growing in bunches of from eight to twelve. A well-grown plant may be allowed to carry more than twenty bunches, especially if the fruit are gathered as they ripen. This is a mid-season variety, and is very productive, notwithstanding the small size of the fruit.



Pear-shaped, or Fig, Tomato (branch, $\frac{1}{3}$ natural size).

The **Red Currant Tomato** (*Solanum racemiforum*, Dun.) is sometimes grown for table use, but more frequently as an ornamental plant. Fruit rounded, small, and scarlet, produced in long clusters of twelve, fifteen, or even more, containing an acid pulp.

Amongst the numerous varieties of Tomatoes which we have not described, the following deserve to be mentioned :—

Beauty.—Productive, fairly vigorous; fruit medium-sized, smooth, purple-red. In the United States this is considered one of the best of the purple Tomatoes.

Belle de Leuville.—Fruit of the same shape as the Large Red Tomato, with faintly marked ribs, smooth, well shaped, remarkable for its crimson tint, almost violet when ripe. This variety was raised at Leuville, near Arpajon, in the vicinity of Paris. The new round-fruited kinds are at the present day preferred to it, but it appeared before any of the American or English varieties which are now so extensively grown.

Blenheim Orange.—A beautiful medium-sized fruit, of excellent quality, without ribs; slightly flattened, and a bright orange-yellow.

Cherry Tomato (branch, $\frac{1}{3}$ natural size)

Earliana.—An American variety recently obtained, considered in the country of its origin to be the earliest of the middle or large-sized varieties. A small, vigorous plant, bearing numerous fruit in clusters of five to eight, smooth, regular in contour, bright red, firm in flesh, and good in quality.

Early Mayflower.—A handsome American variety, with medium-sized fruit, very smooth, and intensely coloured, but though named "early," it ripens rather late.

Early Optimus.—Half-dwarf, fairly early; the fruit resemble those of the Perfection Tomato, but are more flattened and less regular in size.

Golden Trophy.—A very large yellow Tomato, smooth, late.

Honor Bright.—An American variety, ripening late; fruit almost round, medium-sized, bright red, keeping well. Despite the yellowish colour of its foliage and slowness to ripen, it is much appreciated in America for producing a late crop, as also for shipping long distances.

Jaune Petite.—A yellow-fruited variety of the Cherry Tomato. Fruit numerous, golden-yellow, and perfectly round.

Large Yellow Tomato.—An American variety of the same shape and almost of the same size as the Large Red Tomato. The fruit is very deeply ribbed, and very inferior to that of the Round or Smooth Yellow Tomato.

Peach.—A very distinct, tall-growing, fairly vigorous variety, characterised by the metallic blue of its foliage. Fruit perfectly round, of the size of a greengage plum, and a peculiar and pleasing pink; it is produced in long clusters of from ten to twelve. A half-late variety.

Scarlet Turk's Cap.—A curious red-fruited kind, with fruit under the average size, and distinguished for the abnormal development of a portion of the carpels, which forms in the centre of the fruit a protuberance similar to that which is seen in the Turk's-cap, or Turban, Gourds. This variety is half-early and moderately productive.

Stone.—A vigorous-growing variety, with large, regularly shaped fruit, scarlet, very smooth; flesh quite solid and firm.

Yellow Pear-shaped.—This is simply a variety of the Pear-shaped Tomato with bright yellow fruit. As in the case of the red-fruited form, there are numerous kinds of it, differing from one another in size and earliness.

STRAWBERRY TOMATO, SMALL MEXICAN TOMATO, or BARBADOES GOOSEBERRY

Physalis pubescens, L. *Solanaceæ.*

French, Alkékenge jaune doux. *German*, Judenkirsche. *Flemish*, Jodekers. *Italian*, Alchechengi giallo. *Spanish*, Alquequenje. *Portuguese*, Alkekengi.

Native of South America.—Annual.—A plant with a very branching, angular stem, from about 2½ to over 3 ft. high. Leaves heart-shaped or oval, soft, hairy, and somewhat clammy; flowers solitary, small, yellow, marked with a brown spot in the centre; calyx bladder-shaped, very large, enclosing one juicy orange-yellow fruit about the size of a cherry; seeds small, lenticular, smooth, pale yellow; their germinating power lasting for eight years.

Strawberry Tomato (⅛ natural size).

CULTURE.—In the south of France this plant grows very well in the open air, without requiring much attention, but

in the climate of Paris it is advisable to sow it in a hot-bed, and treat the plants like Egg-plants or Tomatoes.

USES.—In the south of Europe the fruit is eaten raw and for the sake of its slightly acid taste.

Another species (*P. peruviana*, Hort.) produces yellow berries, which are eaten raw or made into a preserve. It differs but little from *P. pubescens*. *P. Barbadensis*, Jacq., is also in cultivation.

The plant introduced lately under the name of the Small Mexican Tomato is probably *Physalis edulis*, Sims. It is a true annual of rapid growth, and ripens its fruit perfectly in the climate of Paris. Its properties are medicinal rather than culinary.

The *Physalis Alkekengi*, L., is a perennial plant, sometimes grown for ornament under the name of Winter-Cherry. *German*, Blasenkirsche. *French*, Alkékenge officinal.

TURNIP

Brassica Napus, L. *Cruciferæ*.

French, Navet. *German*, Herbst-Rübe. *Flemish* and *Dutch*, Raap. *Danish*, Roe. *Italian*, Navone. *Spanish* and *Portuguese*, Nabo.

Native country uncertain.—Biennial.—The Turnip has been cultivated from a very early period. There appears to be no doubt that it originated either in Europe or Western Asia, but the precise locality is unknown. The root is swollen and fleshy, variable in shape according to the variety, being cylindrical, conical, pear-shaped, spherical or flattened, and equally variable in colour, white, yellow, red, gray, or black; the flesh is white or yellow, sometimes more or less sugary, and sometimes pungent and slightly acrid. Leaves oblong, usually lyrate, and divided to the midrib in the lower part, sometimes oblong entire, and always a light green colour, and more or less rough to the touch; flower-stem smooth, branching; flowers yellow, in terminal spikes, and succeeded by long, slender, cylindrical, long-pointed siliques or seed-vessels, each of which contains from fifteen to twenty-five very small spherical seeds of a red-brown colour, and sometimes, though rarely, almost black. Their germinating power lasts for five years. The varieties of Turnips are exceedingly numerous, and we must confine ourselves to the enumeration of the kinds which are most commonly cultivated.

CULTURE.—The Turnip is an autumn-cropping plant, the main crop always coming in late in the season, and the time of sowing varying only a few weeks, according to the earliness of the different varieties. In the neighbourhood of Paris, the latest varieties are sown from June 25th to July 25th, and the earliest kinds from

July 25th to August 25th. After this date, sowings may be made up to about the middle of September of very early kinds, from which a supply of half-grown roots may be obtained towards the end of the year, and even in spring; as Turnips when not fully grown will not be injured by being left in the open ground during the winter, if they are protected by a covering of dry leaves or straw. It is rather difficult to grow Turnips in spring, and the earliest and tenderest varieties are the only kinds that can be satisfactorily used for that purpose; and even then it sometimes happens that the plants run to seed without forming roots fit for use. The seed may be sown in February in a cold frame, the only kinds employed for this purpose being the Early Flat varieties, the Round Croissy Turnip, and the Jersey Navet. After March 15th the seed may be sown in the open ground, and, by making successional sowings about once a month, a continuous supply may be obtained up to the coming in of the ordinary season's crop. Turnips are generally sown broadcast in beds; but the work of thinning out, hoeing, and all other operations connected with their culture are more easily done when they are sown in drills. The seedlings are hardly overground when they are liable to be attacked by their greatest enemy, the Turnip-fly, from which it is most difficult to protect them, seed having sometimes to be sown twice or thrice over in consequence of the ravages of this insect. As soon as the young plants are well up, and have made a few leaves, thinning out should commence, and be continued at intervals until all the plants are finally placed a suitable distance apart. Plentiful watering is necessary, if the weather is hot and dry, as, in order to ensure good quality in the roots, the plants must not be allowed to suffer any check in their growth. For table use, the roots are usually taken up before they have attained their full size, being more tender and more delicate in flavour when only half or three-quarters grown.

A good variety, or growing the best kinds, is not the whole secret of securing the best roots. This can only be done through good cultivation, and Turnips will repay attention as well as any other crop. Poor, gravelly soil will never produce tender, sweet roots; well-manured land seldom fails to grow good Turnips. It is, therefore, well to see that the soil has been properly prepared for them before sowing the seed. This applies to crops at all seasons. In spring the earliest should be sown on a favourable spot on a south border. The first time the soil is in good working order in March, put the first seed in out-of-doors, and sowings may be made monthly from then until the end of August, putting different kinds in to follow one another according to their earliness.

Early in the season Turnips may form a first crop on the ground for the year; but later on, especially in the case of the winter ones, the seed may generally be sown on ground

which has been cleared of Peas, Potatoes, or such like. In spring deep digging and plenty of manure suit them well, but in sowing after other crops, as suggested, manure is not often wanted and the soil need not be turned over; a hoeing and raking of the surface will suffice in most cases. Drills should be drawn not more than 2 in. deep, and 1 ft. apart is a good distance in spring, but 18 in. may be given to those that have to stand the winter. Turnip seed germinates freely; it is rarely bad, and therefore thin sowing should be the rule. The young plants soon appear above ground, and in favourable weather they grow so quickly that it is almost necessary to begin thinning as soon as the plants can be taken hold of, as crowding has an injurious effect on them at first. It is a good plan to thin them all twice. At first they should be thinned out to 6 in. apart, and the second time every other one should be removed, which will leave the plants for the crop standing at 1 ft. apart or thereabouts.

Snails are sometimes troublesome; they eat off the young plants, but a slight dusting of lime or soot generally prevents them from doing much harm, and dressings of the kind assist greatly in keeping away the grub and insects that often disfigure the roots. The Turnip-fly, too, does not like coming in contact with soot or lime; and a slight dusting of one or the other, or both of these, may be given to the plants in a young state, whether they are much in want of it or not. At all times the surface of the soil between the rows should be kept open and free from weeds, and this is best done by using the Dutch hoe frequently. In hot, dry weather Turnips soon become bitter and stringy, and in this state they are far from good; but by a little forethought and attention no one need ever be obliged to use such, as by sowing small patches frequently a constant supply of delicate roots may be secured. When many of them become ready for use together, part of them may be taken up and stored in a cool shed. They will keep longer there than they would do in the ground, but Turnips taken up too soon lose part of their flavour; therefore they should always be left in growing quarters as long as possible. In winter some take up their Turnips and store them away like Beet or Carrots; but nothing is gained by doing that, and it should never be practised unless the weather is unusually severe. The Chirk Castle should never be stored, except for convenience, as it is rarely injured by frost; but in frosty or snowy weather it is sometimes difficult to get them out of the ground.

Turnips do not submit readily to forcing. Frames are the only places in which they can be treated properly. They must not be forced hard, as this causes them to run to leaf and flower without forming bulbs. The best way is to make up a very gentle hot-bed in February or March. Place a frame and some rich soil on the top, and sow the seed broadcast thinly. Give abundance of air as soon as the young plants can be seen, and never coddle them up with coverings or maintain a very close atmosphere unless the weather really demands it. As the plants increase in size, thin them out to a few inches apart, and the bulbs may be used as soon as they are the size of cricket-balls. As an artificial manure for Turnips, nothing equals superphosphate. This may be dug into the ground before sowing, or it may be sprinkled thinly

in the drills when opened for the reception of the seed.

The Soil most suitable for Turnip culture is a rich, friable, sandy loam, on which medium-sized roots of excellent quality may be produced without the aid of much manure; and the fresher the soil the better flavour the crop,—for which reason preference is always given to those grown on arable land after corn crops, as the kitchen-garden soil is frequently too rich in decayed vegetable matter, and has to support a much greater variety of tap-rooted plants, which extract the elements necessary for their growth from the soil. For this reason the main crop for winter use should be grown in a similar manner to main crops of Potatoes, outside the kitchen-garden proper; and if fresh land be available every year, the results will be all the better. In light dry soils well-decomposed manure must necessarily be supplied; for if the young plants lack nourishment sufficient to ensure a healthy growth, insect plagues invariably attack them in dry periods, and the crop will be hard and stringy. But perhaps the most difficult soils to deal with are stiff, cold, retentive ones, for without a good seed-bed successful results are well-nigh hopeless. Under such circumstances it is a good practice to draw deep drills the required distances, and fill them up with light rich soil, wood-ashes, bone-dust, or guano, in which to deposit the seed, whereby the young plant gets quickly into rough leaf, and grows out of the reach of insects. In dry soils Turnips are often, in hot seasons, not only of inferior quality, but it is also difficult to get the seeds to germinate freely and regularly, and to induce the young plants to make a sufficiently rapid growth to escape the ravages of the fly.

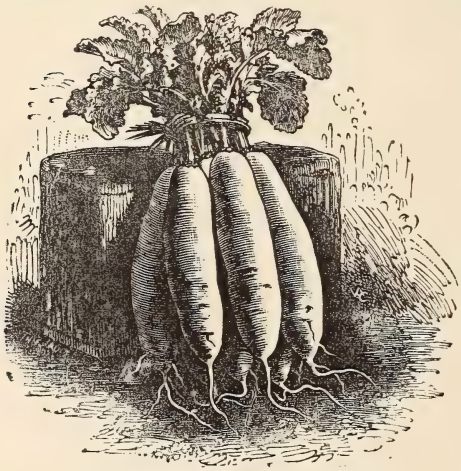
Culture in Market-Gardens. —The earliest sowing of Turnips is made in the end of January or early in February, in pits or frames, or on hot-beds without frames; and main sowings are made broadcast on a field about the end of February, or in March, to be succeeded by another sowing made in April. After the plants come up they are thinned, and the surface soil is at the same time loosened by means of small hoes. The largest roots are first drawn for market; thus the plants get thinned, and those that remain have more space for development. For early crops, when grown in brick pits, 2 or 3 ft. of rough fermenting material is cast into the pit and firmly trodden down, and on this is placed a few inches in thickness of garden soil, which is also made firm. The seeds are then sown broadcast, and afterwards the frame is kept close and moist until germination has taken place, when plenty of air is admitted on every favourable opportunity. If the seedlings come up too thickly, they are thinned out to 3 or 4 in. apart. Frame Turnips are never large; the aim is to grow them quickly to the size of a hen's egg, when they are tender and of good flavour, and to market them at once. The method of growing them in hot-beds without frames is to cast out trenches 18 in. deep, 6 ft. wide, and of any length, and firmly fill them with manure; over this a coating of soil is placed, and rolled or beaten solidly with the back of a spade; the seed is then sown, slightly covered, and finished off by rolling again; hoops made of hazel sticks are then fixed over the beds, so that they can be covered with mats, and in the event of hard

frosty weather setting in, some strawy litter is added to the covering. If the weather is mild, the mats are let down every day so as to admit light to the young plants; and as soon as it can be done with safety, they are removed from over the beds and left erect around their sides in order to ward off winds. Sometimes the aid of either frames or hoops and mats is dispensed with, and the crop is grown on hotbeds like those just described, a little loose litter being merely strewn over the surface until the plants are established; in this way excellent Turnips are produced a week or two later than those which have been protected. Some growers use the space between the lines of frames for growing Turnips; and well it answers for that purpose, as, owing to the soil being below the general level, it keeps comparatively moist, and the belts of frames protect the plants considerably. The soil between Turnips is kept stirred with the hoe as frequently as possible, for no crop is more benefited by surface stirrings than this. Spring Turnips are generally got off the ground in time to permit of it being cropped with French Beans, summer Cabbage, Spinach, or Celery.*

USES.—The roots are boiled, and served up in various ways. In spring the young shoots or "tops" may also be used, especially if grown in a dark place, when they furnish a very delicately flavoured vegetable, somewhat like the Sprouting Broccoli.†

A. LONG VARIETIES

Half-long White Forcing Turnip.—A very pretty variety, intermediate in shape between the White Carrot-shaped Turnip and the Jersey Turnip, but smoother, less leafy, and earlier than either. It is unrivalled for forcing, succeeding, if sown under glass in the spring, better than any other variety known. The foliage is light, very much cut, and quick in growth. It is less liable to run to seed than any other Turnip if its growth be properly pushed.



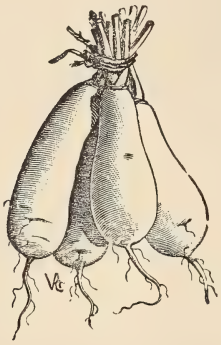
Half-long White Forcing Turnip.

White Carrot-shaped, or Pointed Vertus, Turnip.—Root pure white, cylindrical, ending in a long point, often curved or twisted, 6 to 8 in. long and 2 in. or less in diameter, visible above ground for nearly one-fourth of its length; flesh white, very tender, sugary; skin very smooth,

* Yellow-fleshed Turnips, see p. 775. † The Turnip Fly, see p. 782.

and dull white, both on the underground portion and on the neck; leaves small, dark green, numerous, deeply cut, and forming a rather thick tuft. This variety grows very well in light, moist, deep soil, and is extensively cultivated in the fields about Paris for market supply.

White Carrot-shaped Turnip.



Half-long White Vertus, or Jersey, Turnip.

Half-long White Vertus, or Jersey Navet, Turnip.—Root white, nearly cylindrical, but swollen at the lower end, which is obtuse or rounded, 5 or 6 in. long, and about 2 in. broad in the thickest part; flesh white, very tender, and sugary; leaves numerous and short, divided to the midrib in rounded lobes, and dark shining green. This is pre-eminently the kitchen-garden variety of Turnip, and is the kind which is most generally grown by the market-gardeners of Paris, so that it is rare to find the Central Market without it at any season. In the open ground the root is formed in two months or two months and a half, and the variety is also one of the best for forcing. Like Radishes, the roots become hollow at the centre, if allowed to grow too large, and they are generally gathered for use when about two-thirds grown.

Half-long Red-top Vertus Turnip.

Half-long Red-top Vertus Turnip.—In cultivation and productiveness exactly the counterpart of the Jersey Turnip. It

differs from it only in the purple-red colour of the part above ground—a very pleasing characteristic, which may, in some cases, cause it to be preferred to the white form.

Teltow Turnip
($\frac{1}{5}$ natural size).

Teltow Turnip.—Root entirely sunk in the ground, conical or pear-shaped, short and small, from $2\frac{2}{5}$ to $3\frac{1}{5}$ in. long, and $1\frac{2}{5}$ in. broad at the neck, and gray-white; flesh very dry but not hard, and sugary; leaves very small, with rounded lobes, not more than 5 or 6 in. long, drooping on the ground and withering when the root is fully formed. This is an early variety and succeeds very well in light sandy soil. The root, when cooked, has a peculiar flavour, different from that of all other Turnips; it is milder and more sugary, and the flesh is almost floury, instead of being juicy and melting. The roots will keep all through the winter, and even far into the following year, if taken up and stored in half-dry sand.

Freneuse Turnip.—Root entirely sunk in the ground, spindle-shaped, with a wrinkled gray-white skin, and rather numerous rootlets, narrowing from the neck like a Salsafy root, 5 or 6 in. long, and $1\frac{1}{5}$ in. or at most $1\frac{3}{5}$ in. in diameter at the neck; flesh white, dry, sugary, and very firm; leaves small, short, very much divided, and dark green, forming a rosette which lies flat upon the ground. This variety is grown in the vicinity of Paris in the fields, in somewhat poor or gravelly soils, in which it succeeds better than in stiff soil. When grown in stiff soil, the root is often misshapen. It is the most highly esteemed of the dry-fleshed Turnips.

Freneuse Turnip
($\frac{1}{5}$ natural size).

The *Jargeau* and *Rougemont* Turnips, the latter of which is a great favourite in the neighbourhood of Pithiviers, are small dry-fleshed Turnips which exhibit no perceptible difference from the Freneuse variety.

Hardy White Winter Turnip. — Root entirely sunk in the ground, white, smooth, regular, conical; flesh white, firm, very sweet; leaves large and numerous. Though not a late variety, on the contrary a very quick grower, it is especially suited for late sowings, for use at the end of the autumn and during winter. It may be left in the ground for a part of the winter.

Red-top Viarmes Turnip.—A fairly hard-fleshed variety, in shape like a half-long Carrot, white, with a rosy purple top. The

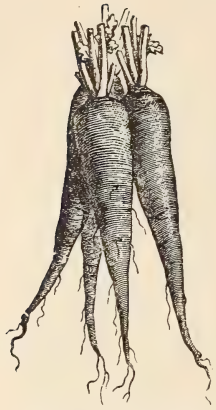
flesh is white, firm, dry, and well flavoured. It is largely brought into the Paris market, especially in the latter part of the autumn. In moist or well-watered gardens it may be grown for use as early as the end of summer and during the whole of the autumn.

Morigny Gray Turnip. — Root of a very long ovoid shape, projecting only about 1 in. overground, 6 or 7 in. long, and 2 in. broad in the thickest part, which occurs at about one-fourth or one-third of its length; skin rather smooth, iron-gray or slate-coloured; flesh white, rather tender, and sugary; leaves medium-sized, half-erect, and of a light green. A rather early and good kitchen-garden variety. If sown rather late, the roots may often be kept in the ground through the winter, provided they are covered with straw or dried leaves.

Hardy White Winter Turnip.

Morigny Gray Turnip (⅛ natural size).

Long Black Turnip.—Root very long, spindle-shaped, clean skinned, almost entirely sunk in the ground, 6 to 8 in. long, and 2 in. or more in diameter at the neck; skin black, as dark coloured as that of the Winter Radish; flesh white or grayish white; leaves rather stout, erect, and dark, shining green. This is a rather early variety, and when sown not sooner than in August, it keeps very well through the winter, like the preceding variety, if covered with straw or dried leaves. This method of preservation in winter is likewise generally applicable to all the varieties of Turnips which have the root deeply sunk in the ground, and especially so to those kinds which grow with the neck of the root projecting a little above the surface and with the leaves erect rather than



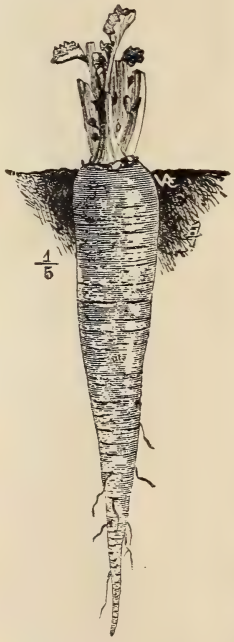
Long Black Turnip
(⅓ natural size).

spreading. The roots thus protected can be taken up for use as they are required.

Long Yellow Turnip.—Root entirely sunk in the ground, clean skinned, smooth, regular in shape, gradually narrowed from neck to point, and of a dull or wan yellow colour. It usually does not exceed 6 or 7 in. in length, and the diameter at the neck averages about 2 in. The flesh is yellow throughout, fine in texture, rather firm, sugary, and agreeably flavoured. Leaves half-erect, rather divided, and a peculiar dark green. A somewhat late variety, but excellent for table use, of very good quality and keeping well.

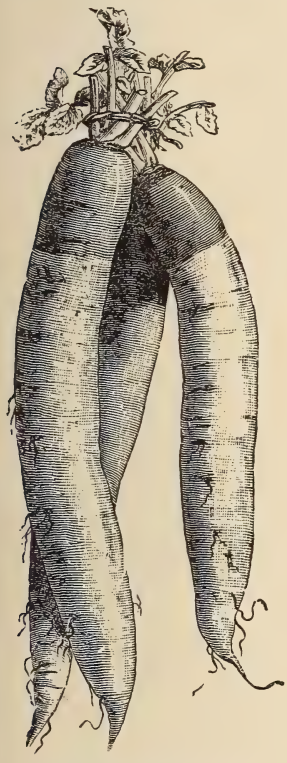
Parisians are prejudiced against the Yellow-fleshed Turnips, supposing that the yellow colour is always accompanied by a strong and bitter flavour, which is far from being the case, as amongst the Yellow-fleshed Turnips there are varieties the flesh of which is very mellow and very delicately flavoured, quite as much so, in fact, as that of the White-fleshed kinds. The prejudice, nevertheless, exists, and consequently should be taken into account by those who cultivate vegetables for the markets.

Long White Meaux Turnip.—Root very long, cylindrical, but ending in a point, and very often twisted or curved, projecting 2 or 3 in. overground, 12 to 16 in. in length, and 2 or 3 in. in diameter. All the underground portion is white; the overground part is sometimes cream colour and sometimes tinged with pale green. Flesh white, close, half-dry, rather sugary; leaves medium-sized, lyrate, numerous, erect or half-erect. This is a very productive variety, and is principally grown in its native district for the supply of the Central Market of Paris in the latter end of winter. In order to keep them up to that time, the market-gardeners of Meaux cut off the "tops" of the plants soon after taking them up, and pile the roots in trenches, covering them over with sand. During the winter they bring them to market in bundles, and, as the roots have been deprived of their leaves, they are fastened together by a straw rope passed through them near the top.

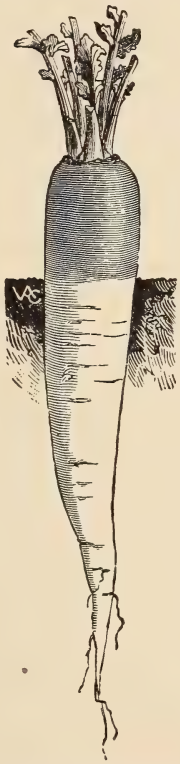


Long Yellow Turnip
(⅙ natural size).

Long Green Tankard Turnip.—Root half-sunk in the ground, nearly cylindrical in the upper part, and regularly narrowed in the portion underground—which is white, the above-ground part being green—12 to 14 in. long, and about 3 in. in diameter; flesh white, tender, and rather juicy; leaves large, half-erect, rather broad, and light green. A very productive variety, the root attaining a considerable size. Though more grown for feeding cattle than for table use,



Long White Meaux Turnip ($\frac{1}{5}$ natural size).



Long Green Tankard Turnip ($\frac{1}{5}$ natural size).

Long Red Tankard Turnip ($\frac{1}{5}$ natural size).

if pulled while young and tender it is not a bad vegetable. When grown in the fields, it is sown in July, and yields almost as heavy crops as the large late kinds, such as the Norfolk Turnips and others which require to be sown in June.

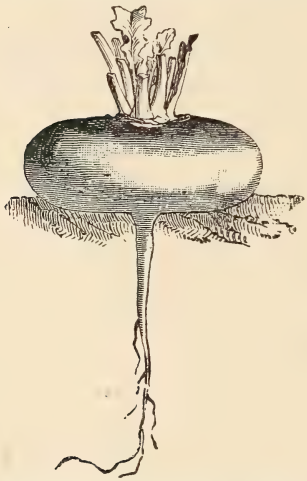
Long Red Tankard Turnip.—This variety very nearly resembles the preceding, but the upper part of the root is violet-red instead of green. It is also, on the whole, somewhat shorter and thicker than the Green Tankard variety, and, like it, is more

grown for cattle-feeding than for table use. The Red Tankard Turnip is much cultivated and highly esteemed all through Central Europe, from Poland to England, but it is only in France that the most regular forms of it, as regards shape and colour, are to be found. The forms grown elsewhere generally have the roots too short and top-shaped, and the upper part more of a pink or lilac hue than really red.

The *Navet-rave de Bresse* is only a late long-rooted form of this variety.

B. Round or Flat Varieties

Early White Flat Dutch Garden Turnip.—Root a broad disc shape, often sinuated and not regularly rounded in outline, 4 or 5 in. in its greatest diameter, and about 1½ in. in depth; flesh white, tender, not very sugary, and of good quality; leaves half-erect, lyrate, and divided at the base as far as the midrib. This is a very early variety, and is suitable both for forcing and for late sowing in the open air. Like all the flat varieties which we shall describe, this Turnip



Early White Flat Dutch Garden Turnip (⅛ natural size).

White Strap-leaved American Stone Turnip (⅛ natural size).

merely rests on the surface of the ground, into which it does not sink farther than by sending down a slender perpendicular tap-root, which does not ramify until it reaches a certain depth.

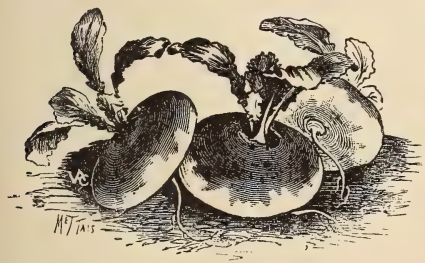
White Strap-leaved American Stone Turnip.—This variety differs chiefly from the Early White Flat Turnip in having shorter leaves with an oblong entire blade, which is toothed on the margin, but not divided or lobed. The root also is slightly thicker and rounder. Along with the preceding and the five following varieties, this is an excellent kind for forcing. As in the present

instance, we shall often meet with similar varieties which only differ from each other in the leaves being divided in the one kind and entire in the other. This difference by itself is of no importance, and is only noteworthy when combined with some special recommendation of earliness or good quality.

Red-top Strap-leaved American Stone Turnip ($\frac{1}{5}$ natural size).

Early Red-top Flat Garden Turnip.—The root of this variety is of the same size and shape as that of the Early White Flat Dutch Garden Turnip, but differs from it in the violet-pink colour of the upper part. It is grown and used in exactly the same way. In the east of France, under the name of *Navet à Collet Rose de Nancy*, a good form of this variety is cultivated, which almost resembles the Early Purple-top Munich Turnip.

Red-top Strap-leaved American Stone Turnip.—A very flat variety, and of very regular shape, differing from the Early Flat Red-top Turnip in having entire leaves, not lobed at the base, and also by being at least four or five days earlier. The leaves are erect and stiff, and as they are also rather short, this is a very suitable variety for frame culture. It has also the merit of forming the roots freely, even when grown in spring, and of being slower to run to seed than most other Turnips. Yet, notwithstanding all these good qualities, it is possible that the Purple-top Milan Turnip may, on account of its greater earliness, supersede it to some extent for forcing purposes. The present variety is also often sown in the open ground. It was raised in America.

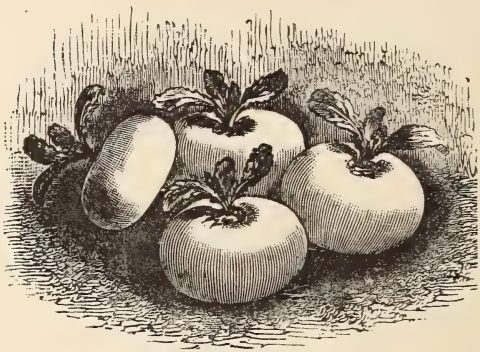


Milan Purple-topped Turnip.

Milan Purple-top Strap-leaved Turnip.—This handsome variety is only a form of the Red-Top Strap-leaved American Turnip, but is so distinct that it deserves a separate notice. The root is small or medium-sized, very flat, quite smooth, pure white on the underground part, and bright violet-red on the upper part. The leaves, which are entire, rather erect, and

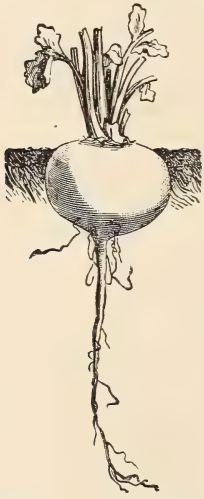
very short, are few for the size of the root. It is one of the earliest varieties known, and is well adapted for forcing, even in spring.

White Milan Turnip.—Root small, very smooth, flat, entirely white, with a slender tap-root; leaves small and few, undivided, oval. A variety of the Purple-top Milan Turnip, described above, quite as early, as well suited for forcing and milder in flavour.



White Milan Turnip.

Croissy, or Round Early Vertus, Turnip.—Root sunk in the ground, round, or slightly top-shaped, from $2\frac{4}{5}$ to $3\frac{1}{5}$ in. in diameter and depth, and with a tap-root of some length; skin white, smooth; flesh very white, tender, sugary, and very agreeably flavoured; leaves medium-sized, erect, and light green. A very good early variety, and a great favourite with the Parisian market-gardeners. It is one of the best kinds for forcing.

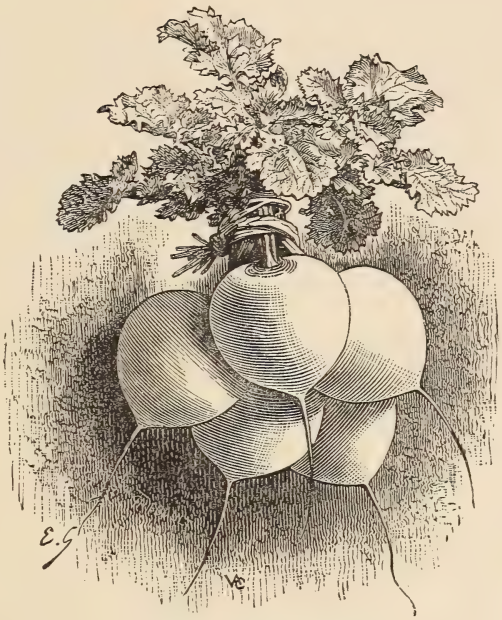


Croissy, or Round Early Vertus, Turnip ($\frac{1}{5}$ natural size).

Early Six Weeks', or Jersey Lily, Turnip.—Extremely smooth slightly flattened root, just half as thick as broad; underground portion white, the upper part cream-white; leaves cut; foliage light and vivid green. Half-early, very neat in shape, never producing large roots. A garden, not an agricultural Turnip.

Jersey Lily Turnip.

White Round Epernay Turnip.—A very pretty variety; root dull white, spherical or top-shaped, resembling somewhat the Jersey Lily and the Round Vertus Turnip. Flesh quite white, firm, sweet; leaves few, broad, and divided. Remarkably early, and for its excellent keeping quality may be recommended for market growing.



White Round Epernay Turnip.

Purple-top White Globe Turnip. — Root large, quite round, white underground, and purple on the upper part for about one-half of the length of the root; leaves very broad, little divided, dark green, tinged with brown during winter. Of good quality for the table; yields heavy crops, and may be recommended also for cattle-feeding purposes.

Scarlet Kashmir Turnip.

Scarlet Kashmir Turnip.—Root rounded, flattened, quite smooth, and a beautiful bright red, more like a Radish than a Turnip. The flesh is white, of good quality, and keeps well. A native of Kashmir.

Chirk Castle Black Stone Turnip. — Roots rounded, flattened, the diameter being nearly double the depth—usually 4 or 5 in. across and about 2 in. deep; skin of a uniform rather deep black or a very dark gray; flesh white, firm, close, half-dry, sugary, and very well flavoured; leaves

lyrate, very slight, half spreading, and deep green. An early variety, of remarkably good quality, and bearing a striking resemblance to the Black Turnip Radish. The perceptible differences in shape which are often observed in this variety depend chiefly upon the extent to which its growth has been developed. The root soon ceases to extend itself vertically, and then, in proportion as it swells horizontally, it either becomes more or less flat or else remains almost spherical.

Yellow Flat Purple-top Montmagny Turnip.—Root very handsome, flat, half-sunk in the ground, dark yellow on the lower part and dark violet-red on the upper portion, often 5 or 6 in. in diameter, and 3 in. or more deep; flesh yellow, rather firm, tender,

Chirk Castle Black Stone Turnip
($\frac{1}{8}$ natural size).

Yellow Purple-top Montmagny Turnip.

and of very good quality; leaves medium-sized, lyrate, dark green, and generally almost flat upon the ground. This very fine variety, which has been raised recently, has already become highly valued and much sought after in the neighbourhood of Paris and in England. It is productive, half-early, and keeps well. The very striking contrast between the yellow and the red parts of the roots gives it a very peculiar and pleasing appearance, which, together with its earliness and the superior quality of the flesh, are powerful recommendations in its favour. It is one of the most agreeably flavoured of all the kitchen-garden varieties of Turnips, especially when taken young, before it has attained its full size.

Yellow Dutch Turnip.—The root of this variety is flattened at the top, but still comparatively deep, so that it might be considered intermediate between the Round and the Flat varieties.

It seldom exceeds 3 or 4 in. in its greatest diameter, while its depth or vertical measurement is between 2 and 3 in. Skin uniform yellow on the underground portion of the root and light green on the upper part; flesh yellow, tender, sugary; leaves medium-sized, half-erect, and of a light green colour. This is a half-late kind, and keeps well. It is one of the best kitchen-garden varieties.

Yellow, or Golden, Maltese Turnip.—Root very much flattened at both ends, being about 2 in. deep, and 4 or 5 in. across in its widest part; skin and flesh pale yellow; neck green, very distinctly marked; leaves rather small and slight, divided, and dark green. This is a good half-early variety, but the roots are sometimes rather strong flavoured. It is decidedly the flattest

Yellow Dutch Turnip.

Yellow, or Golden, Maltese Turnip ($\frac{1}{3}$ natural size).

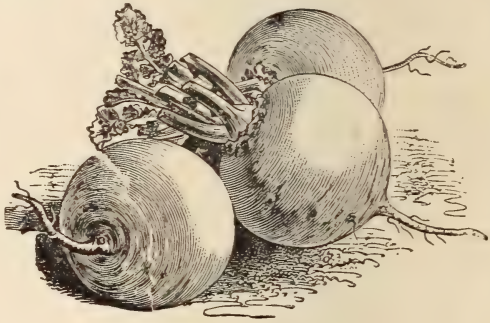
variety of all the Yellow-fleshed Turnips, amongst which it holds the same place that the Early White and Red Turnips occupy amongst the White-fleshed kinds.

Yellow Finland Turnip.—Root perfectly flat and even concave underneath, so that the tap-root which descends into the ground appears to issue from the centre of a kind of depression or cavity; the upper part, on the contrary, is rather convex or conical in outline. The root is seldom large, being usually not more than 3 or 4 in. in diameter across, and 2 in. or less in depth. Skin very smooth, and of a fine golden-yellow colour, as is also the flesh; leaves very short and compact, not much divided, sometimes quite entire in the forms imported directly from Finland. This is an exceedingly hardy and rather early variety, and very suitable for sowing late in autumn. While the roots are young, the flesh is

very fine and agreeably flavoured, but afterwards it becomes somewhat strong and unpleasantly bitter.

Orange Jelly Turnip (English synonyms: Golden Ball and Robertson's Golden Stone Turnip).—Root perfectly spherical when not very much grown, but slightly flattened when it has attained its full size; it is then generally 4 or 5 in. in diameter every way. Skin very smooth and yellow; flesh yellow, soft, and well flavoured, but slightly bitter; leaves of medium height, rather broad lyrate. This variety is half-early, and highly esteemed in Scotland and the north of England.

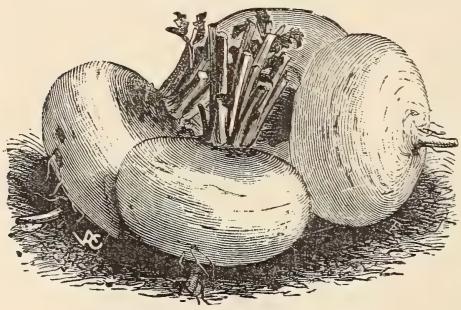
Yellow Finland Turnip
($\frac{1}{8}$ natural size).



Orange Jelly Turnip.

The following varieties are usually grown for cattle, but may also be used for the table if pulled before fully grown :—

Early Stone, or Stubble, Turnip.—Root somewhat top-shaped, slightly flattened, white, except on the part overground, which is usually tinged with green, nearly 5 in. in diameter in the widest part when well grown, and from $3\frac{1}{5}$ to $3\frac{3}{5}$ in. deep; neck broad; flesh white, tender, sugary, and soft; leaves stout and tall, erect, broad, and not much divided. Root rather late in attaining its full size. This variety is most generally grown for feeding cattle, and is seldom sent to table, although, when taken young and tender, the roots are of good quality.



Early Stone, or Stubble, Turnip

Strap-leaved White Globe Turnip.

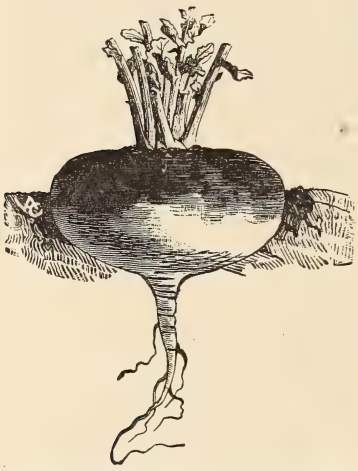
Strap-leaved White Globe Turnip.—Root of regular spherical shape; skin very smooth and entirely white, except where it is marked by a few scars around the neck, indicating the positions of the earliest leaves; flesh white, firm, and close grained; leaves long, erect, entire, of a very long oval shape, toothed on the margin, and of a rather pale or light green colour; neck very short and fine. One of the characteristics of this variety is the quickness with which the root becomes spherical. When fully grown it measures about 5 or 6 in. in diameter. This variety was raised in Anjou, and is especially suitable for field culture.

White Norfolk, or **Cornish White, Turnip.**—Root spherical or very slightly flattened at the top, pure white, 6 or 7 in. in diameter and about 5 in. deep when full grown; flesh white, tender, and somewhat watery; leaves very tall, erect or half-erect, with stout stalks or midribs. This is a very late variety, and is exclusively grown in the fields. There is a sub-variety of it, the Green-top Norfolk Turnip, in which the overground part of the root is of a green colour; and another, the Red-top Norfolk Turnip, in which the same part is of a reddish violet colour. There is hardly any difference between these and the White variety in the size of the root or in the manner of growing them. All these kinds should be sown very early to attain

Norfolk Turnip.

their full size, and consequently they only succeed well where the climate is moist and cool, or where the weather in summer is not very dry. Nothing, in fact, is more injurious to Turnips than dry, hot weather, which causes destructive insects to become more active in their ravages, while the growth of the plants is at the same time, so to say, suspended by it. While it lasts, they form no new leaves, and those which they already have are riddled into holes and almost entirely destroyed by the Turnip-fly, to the great injury of the growth of the roots.

Early Red-top Flat Auvergne Turnip.—Root very flat on the top, about 2 in. deep, and often 6 or 7 in. across; skin very smooth, and a rather pale violet-red for the whole of the upper portion of the root; flesh white, rather soft and watery; leaves tall, divided, broad, and numerous. This is a very productive variety, and succeeds best in granitic or schistose soils. It is more grown for feeding cattle than for table use.



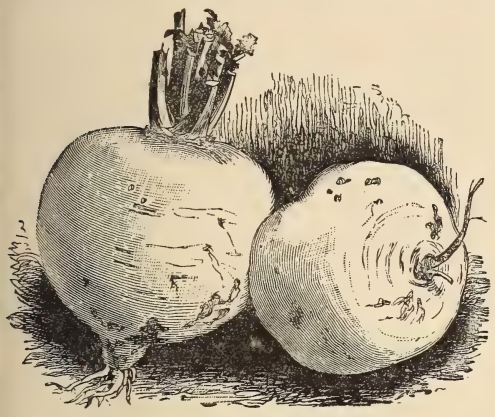
Late Auvergne Turnip ($\frac{1}{6}$ natural size).

The local strains of Auvergne Turnip are very numerous and cannot well be divided into early or late sorts; the beautiful *Lezoux* variety is an example of this: it is quite flat below and above, about three times as broad as it is thick, and attains the size of a Basque *beret* or cap, which it resembles in shape. In a sense it is early, as it bulbs rapidly, but, on the other hand, it takes a long time to develop fully.

Late Auvergne Turnip.—Root two-thirds sunk in the ground, top-shaped, but tolerably flattened, 3 or 4 in. deep, and about 6 in. across; the upper portion is of a violet-red, or rather dark bronzy colour; leaves broad and stout, more tufty in growth and darker in colour than those of the Early variety. This variety is even more suitable for field culture than the preceding one, being seldom grown for table use outside of its native district. The central plateau of France, on account of its elevated position, possesses a climate very favourable to the cultivation of large-sized Turnips, and there we find the two largest kinds of Turnips that are grown in France, namely, the Auvergne and the Limousin varieties.

The *Ayres* Turnip, which is grown in the departments of Tarn and Tarn-et-Garonne, appears to us to be identical with the Late Auvergne Turnip.

Limousin Turnip.—Root roundish or slightly top-shaped when young or badly grown, very large, broad, and slightly flattened on the top when fully grown, when it not unfrequently measures 10 in. in its greatest diameter and at least 6 in. in depth; skin smooth, entirely white; flesh white, not very sugary; leaves very large and tall. This variety is only grown in the fields. As it is a late kind, it is especially adapted for cool, moist climates, where it can be sown in June. It is the largest and most productive of the Turnips which are grown in France.



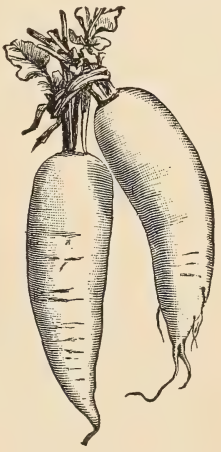
Limousin Turnip (⅛ natural size).

In addition to the foregoing varieties we may also mention the following:—

Amber Globe Turnip.—Root almost round or, more usually, top-shaped, pale yellow, with a green neck; leaves entire, long, and light-coloured; flesh pale, sugary. An American variety, highly esteemed in the United States.

American Strap-leaved Turnip.—Comes very near the White Globe Strap-leaved Turnip, having, like it, a white, rounded root, slightly top-shaped, and large, entire leaves.

Briollay Turnip.—This variety, which was raised in Anjou, bears some resemblance to the White Tankard Turnip, but is smaller, shorter, thicker, and deeply sunk in the ground. It is also of better quality and more suitable for table use, being a true kitchen-garden Turnip and not a cattle-feeding variety, although it is often used for that purpose, as all other kinds of Turnips are when they have grown too large.



Long Briollay Turnip.

Clairefontaine Turnip.—Root spindle-shaped, straight, smooth, grayish white, rising little from the ground; flesh white and tender. Suitable for growing in ordinary soil, less delicate and less exacting than the Vertus Turnip.

Cruzy Turnip.—A very distinct variety. It is the only dry-fleshed Turnip which has a perfectly flat root. Skin a gray-white.

The root is nearly twice as broad as deep, and is often irregular in shape.

Early Chantenay Turnip.—This very much resembles the Chirk Castle Black Turnip, like which it has the root tolerably flattened, but is not so deeply coloured, being more gray than black.

Early Snowball Turnip.—An early kind, with a globular or slightly flattened root of a pure white colour. It differs from the Early Stone Turnip in having no green colouring around the neck.

Gray Flat Russian Turnip.—Root tolerably flattened, fully one-third broader than deep, with an iron-gray skin marked transversely with whitish lines. A hardy variety, but not superior to the Chirk Castle Black Turnip.

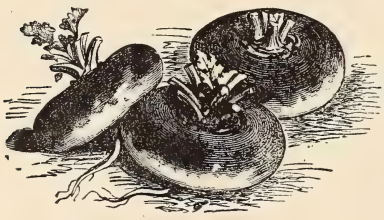
Gray Luc Turnip.—A small dry-fleshed Turnip, with a long root, tolerably like the Freneuse Turnip, but with the skin somewhat more wrinkled and grayish.

Gray Saulieu Turnip.—Root spindle-shaped, resembling that of a half-long pointed Carrot, four times as long as broad; skin gray, somewhat wrinkled; flesh firm, dry, sugary, and slightly yellow.

Green-top Six-weeks' Turnip.—Root flattened, fully a third broader than deep, often growing to a considerable size, white on the underground part and green at the neck; flesh white, tender, sugary, and rather firm. Ripens early.

Malteau Turnip.—Root elongated, of a long ovoid shape, shorter and thicker than that of the Freneuse Turnip, which it resembles in its leaves and in the texture of the flesh of the root, which is very dry and firm. A good variety, and still pretty largely grown in the vicinity of Paris.

Nancy Flat Purple-top Turnip.—A handsome form of the Early Flat Purple-top Turnip, remarkable for its earliness, the regularity of its shape, and the very deep colour of the upper part of the root. It hardly differs from the Munich Turnip, which even surpasses it in earliness.



Purple-top Munich Turnip.

Petrosowodsk's Purple Turnip. — A violet-coloured variety of the Finland Turnip, and similar in shape, having the same marked depression in the under-part of the root around the tap-root. The leaves are sometimes lyrate and sometimes entire.

Purple-top Munich Turnip.—Remarkably early, resembling in shape and size the Early Flat Red-top Turnip, but violet in colour, deepening to purple in the part above ground.

Purple-top Scotch, or Tweeddale's Improved, Turnip.—A sub-variety of the Yellow Aberdeen, differing only from that in the purple colour of the neck.

Round Green-top Dry-fleshed Turnip.—Root globular, slightly flattened, rather resembling that of the Des Vertus or Croissy Round Turnip, but distinguished by the green tint of the neck and the flesh of the root being as firm and dry as that of the Freneuse Turnip. The leaves are deeply lobed, half-spreading on the ground, and of a light green colour. This is a half-early variety and keeps well.

Round Green-top Dry-fleshed Turnip (⅛ natural size).

Sablons Round White Turnip.—Root ovoid, one-third longer than broad, rather like that of the Croissy Round Turnip in every respect except its shape; flesh white, close, sugary, and half-dry.

Scaribritsch Turnip.—Root flattened, clean skinned, and regular in shape, one-fourth broader than deep; neck fine, green-coloured; the remainder of the root yellow; flesh yellowish white, tender, firm, and sugary; leaves very light in colour.

Scarlet Gratscheff's Turnip.—The same in shape as the Yellow Finland Turnip, but somewhat larger, more flattened below, and bright purple in colour.

Schaarbeck Turnip.—This variety is grown in the neighbourhood of Brussels, where it is highly esteemed. It is a flat white variety with a green neck, early and small sized, with flesh of fine texture and excellent quality.

White Egg Turnip.—Root ovoid, one-third longer than broad; skin very white and very smooth; flesh white, firm. This variety is highly thought of in the United States, where it is to be met with in large quantities in the markets.

Wolton's Hybrid Turnip.—Root almost perfectly spherical, sometimes slightly pear-shaped, entirely white on the part underground, and red on the upper part; flesh white, tender, and mild; leaves broad. Ripens half-early.

Yellow Aberdeen Turnip.—Root spherical or slightly flattened, yellow, tinged with green above ground; flesh light yellow, rather firm; leaves large, half-erect, smooth, dark green.

Yellow Bortsfeld Turnip.—This differs from the ordinary Long Yellow Turnip by being more slender in shape, by growing

not so deeply sunk in the ground, and having the neck a greenish colour. Its quality is good and it keeps well.

Yellow Globe Turnip.—An American variety, coming very near the Yellow Dutch, but somewhat paler in colour and more spherical in shape.

Yellow Scotch Turnip.—An early variety, with a spherical or slightly flattened root, rather pale yellow in colour, and sometimes tinged with green at the neck. Root very clean skinned, almost entirely sunk in the ground ; flesh pale yellow, tender, and sugary.

Yellow Tankard Turnip.—An English variety, with an elongated spindle-shaped root which is twice as long as broad, and pale yellow, except at the neck, which projects slightly from the ground and is greenish. Flesh pale yellow, close grained, and of a mild flavour. Ripens early.

UNICORN-PLANT

Martynia, Lindl. *Sesamaceæ.*

French, Martynia. *German*, Gemsenhörner.

The plants of this genus are tall, stout, vigorous annuals. Stem fleshy, $1\frac{1}{5}$ to $1\frac{2}{5}$ in. in diameter ; leaves large, heart-shaped, gray-green, and somewhat hairy; flowers large, resembling those of a Catalpa in shape, and yellow or lilac, according to the species; fruit long, ovoid, curved, and terminating in a long hooked point, and enclosed in a soft green kind of shell, which dries up when ripe, the fruit then becoming woody and blackish, and the extremity dividing into two long crooked horns, as it opens to allow the seed to escape; seeds large, black, with an irregular rough or shagreened surface. Their germinating power lasts for one or two years.

Unicorn-plant ($\frac{1}{3}$ natural size).

CULTURE.—These plants require a good amount of heat, and it is advisable to sow the seed in a hot-bed and either allow the plants to complete their growth there or plant them out in good soil in a warm place.

USES.—The fruit, gathered while young and tender, is pickled in vinegar. It should be gathered when not more than half-grown, as, after that, it becomes too tough and leathery.

The Yellow-flowered species (*M. lutea*), is a native of Brazil, and is a plant of moderate size, somewhat trailing in habit, and

yielding an abundance of small-sized fruit. It is the kind most grown for pickling in the United States.

M. proboscidea, Glox., a violet-flowered species, has fruit of larger size and with longer horns. It is a native of Louisiana.

AFRICAN VALERIAN

Fedia Cornucopiæ, Gærtn. *Valerianaceæ.*

French, Valériane d'Alger. *German*, Algerischer Baldrian. *Flemish*, Speenkruid. *Dutch*, Speerkruid.

Native of Algeria.—Annual.—Stems erect, branching, smooth, 1 ft. to 16 in. high; leaves almost all radical, oval-oblong, entire, bluntly toothed, and a rather dark, shining green; flowers pink in terminal clusters; seeds yellow or grayish, oblong, thick, convex on one side, and marked on the other with a deep longitudinal furrow. Their germinating power lasts for four years. The seed may be sown in the open ground, from April to August, in drills 10 to 12 in. apart. When thinned out and plentifully watered in hot weather, the plants quickly form rosettes of leaves, which are fit for use in about two months after sowing. The plant is somewhat sensitive to cold, and is not so suitable for sowing in autumn as the Corn-salad. It is often grown for ornament. The leaves are eaten as salad.

African Valerian (⅓ natural size).

WATER-CHESTNUT

Trapa natans, L. *Haloragaceæ.*

French, Macre. *German*, Wasser-Nuss. *Flemish* and *Dutch*, Waternoot. *Spanish*, Nueis.

Native of S. Europe.—Annual.—An aquatic plant with a long stem which reaches to the surface of the water. Submerged leaves opposite; floating leaves alternate and arranged in a rosette at the top of the stem; blade of the leaf diamond-shaped, broader than long; flowers white, axillary; fruit large, dark gray, bearing four very stout spines arranged cross-wise, two of them being much longer than the others. The germinating power of the fruit does

not last longer than one year, and to ensure even this they must be kept in water. The plant is not usually cultivated, the fruit

Water Chestnut ($\frac{1}{10}$ natural size).

Fruit (natural size).

being gathered where it grows wild. The kernel of the fruit, which is floury and of a very agreeable flavour, is eaten boiled.

WOODRUFF

Asperula odorata, L. *Rubiaceæ.*

French, Aspérule odorante. *German*, Waldmeister. *Dutch*, Lieve vrouw bedstroo.

Native of Europe.—Perennial.—This plant is chiefly found in woods or shady places. Stems weak, prostrate, bearing whorls of oval-lanceolate leaves which are finely toothed on the margin, and very rough to the touch, as are also the stems; flowers small, pure white, with four divisions, and growing together in a spreading corymb; seed almost spherical, gray, and bristling with a large number of very small recurved points. The whole plant exhales a very agreeable perfume, especially when dried. The Woodruff is seldom cultivated except as an ornamental plant. It is perfectly hardy, and grows well either in a bed or as an edging, if planted in good moist soil in a half-shady position. In the north of Europe the leaves are sometimes used to flavour beverages.

Woodruff ($\frac{1}{10}$ natural size; detached flowers, natural size).

WORMWOOD

Artemisia Absinthium, L. *Compositæ.*

French, Absinthe. *German*, Wermuth. *Flemish*, Alsem. *Danish*, Malurt. *Italian*, Assenzio. *Spanish*, Ajenjo.

Native of Europe.—Perennial.—This plant is often grown in gardens on account of its medicinal properties. Stems 3 to 5 ft.

high, rough, and branching; leaves numerous, small, very much divided, and a gray colour, especially underneath; flowers green, not at all striking, borne in clusters at the ends of the branches; seed gray, very small. Its germinating power lasts for four years on an average.

Wormwood.

CULTURE.—Wormwood may be multiplied either from seed or from cuttings or divisions of the roots. If planted in a somewhat sheltered position, the plants will be less likely to suffer in very severe winters. They require no other care, and will continue productive for ten years or longer.

USES.—The leaves are sometimes used for flavouring, but the plant is chiefly employed in the manufacture of various kinds of liqueurs.

YAM (CHINESE)

Dioscorea Batatas, Dcne. *Dioscoreaceæ.*

French, Igname de la Chine. *German*, Chinesische Yam. *Spanish*, Name, Igname.

Native of China.—Perennial.—The Yam was introduced into France in 1848, through the agency of M. de Montigny, the French Consul at Shanghai. It is a perfectly hardy plant, with annual, twining, smooth, green or violet-coloured stems, from 6 to nearly 10 ft. long. Leaves opposite, heart-shaped, with a rather long point, of a dark green colour, and very glossy on the upper surface; flowers dicœcious, very small, white, growing in clusters from the axils of the leaves, and generally barren. Sometimes, instead of flowers, small tubers or bulblets are produced, from which the plants may be propagated. The stems trail along the ground, if they do not find some support on which they can climb. In climbing, they twine from right to left. From the neck of the root issue rhizomes of great length, which, as they descend into the ground, become swollen into somewhat of a club shape. The flesh is slightly milky, and very floury when cooked. The rhizomes

are furnished with numerous rootlets and almost imperceptible buds, from each of which a plant may be produced. They descend almost perpendicularly into the ground, attaining a length of from 2 to over 3 ft., their growth being most active in the latter end of autumn. Being perfectly hardy, they may be left in the ground during the winter, and will increase very much in size in the course of the second year, but their quality is not then so good as at the end of the first year. The lifting of the rhizomes is a rather difficult and expensive operation, as they are rather brittle, and, in order to take them up whole, the ground must often be dug to the depth of a yard or more round each root. This is probably the reason why the plant is so little cultivated in Europe, as it is very hardy and productive, and the rhizomes will compare favourably with Potatoes. The flesh is white, light in texture, mild in flavour and easily cooked. The rhizomes keep well and for a very long time.

Chinese Yam (⅛ natural size.)

CULTURE. — The Yam succeeds well in very good, moist, and sufficiently dug soil, and may be propagated by means of the axillary bulblets, or from rhizomes, either whole or cut into portions. The method which generally produces the most certain and abundant results is to plant whole rhizomes, from 8 to 10 in. long and about as thick as one's finger. It is advisable to furnish the plants with stakes or other supports to climb on, as the ground is then more easily hoed. In very dry weather, watering is very beneficial, as the Yam likes moisture and stops growing when it has not a sufficient supply of it. In November the time arrives for lifting the rhizomes, and if the soil is deep and rich enough, one

may expect to meet with some which are thicker than the wrist towards the end and weigh over two pounds each. Smaller ones also are usually found which are better for planting. Instead of planting them at once in the open ground, they may first be potted about the beginning of March, and planted out about May 15th. The crop then comes in earlier, and is also heavier.

Many attempts have been made to raise a variety of Yam with shorter roots which would not penetrate so far into the ground. These attempts cannot be said to have entirely failed; on the contrary, they have succeeded too well, as varieties have been raised with nearly round rhizomes, clustered around the neck of the plant, but of such feeble growth that the season's yield only represented three times the weight of the rhizomes which were planted. A productive variety of Yam with short roots still remains to be discovered, and perhaps may be found amongst the numerous varieties lately imported from Japan, and which are now being experimented on in France. The rhizomes are eaten like Potatoes, boiled, fried, and prepared in various ways.

ADDENDUM

BY W. P. THOMSON

ARTICHOKE (JERUSALEM)

THERE is now a white variety of this which is a great improvement on the type. The improvement lies in the fact that the white form not being so rugged is far more easily prepared, thus saving a great deal of trouble which follows when the old purple variety is used. If a careful selection of the tubers is made and good cultivation given, the roots of the white form may be still further improved in shape, while the quality also will be better.

In reference to the popular and common name of this vegetable it is not an artichoke at all, but a perennial sunflower—*Helianthus tuberosus* being the Latin name. The word Jerusalem given to the root of a sunflower is a stupid corruption. To try to find out if possible a good English name the editor of one of our gardening papers started a competition inviting readers to send in a suitable name. The competition was very brisk, and the name Sunroot was by the judges considered the best. For clear and simple English and true meaning the word Sunroot is a very appropriate one, but we doubt whether the word will come into general use. In the growing of the Sunroot good culture is all-important. We were recently consulted as to the reason of the tubers being poor and of very inferior quality. On inquiring as to the cultivation it was clear that there had been no cultivation at all. The tubers had been planted thickly in poor soil in an out-of-the-way part of the garden, and had been left to shift for themselves. If under this maltreatment the plants get so crowded that the leafage can get no light and air, it is but little wonder that tubers are poor. The ground for the Sunroot must be deeply trenched and given a good dressing of manure, fair even-sized tubers being planted in February or March, in rows 24 in. apart with 12 in. between the tubers in the row.

BEANS (CLIMBING FRENCH)

These are gradually becoming more popular, and within recent years many excellent and prolific varieties have been introduced.

The chief advantage gained in their cultivation when compared with the dwarf-growing kinds is that, like the Scarlet Runner Bean, they yield a continuous succession of pods over a long period, and the necessity for making frequent sowings is therefore dispensed with. From a cultural point of view they require precisely the same treatment as dwarf French Beans, the only difference being that as the plants attain a height of 5 to 5½ ft., and have therefore to be supported with long rods or pea boughs, it is necessary to allow a distance of some 4 to 5 ft. between the rows.

Owing to their being capable of producing pods successively, they are, where accommodation exists, of great value for forcing under glass, the plants being grown either in pots 12 in. in diameter or in narrow borders of soil, in which case the growths may be trained to strings or bamboo canes.

The following are reliable varieties:—

Fillbasket.—A very productive variety. One of the best of this type of French Bean. Quality first-rate.

Tender and True.—An excellent variety and very prolific.

Earliest of All.—A first-rate early kind to grow for first crop.

BEET (A NON-BLEEDING)

The great drawback to the careless handling of Beet is that if bruised in any way it is very liable to bleed when being cooked, and thus the rich colour of that best of all Beets—*Cheltenham Green Top*—is spoiled. During the last few years a variety known as *Galloway Purple* has been put into commerce. This variety may be cut in two before cooking and will not lose colour, a decided gain.

CABBAGE

Sowing and Planting.—The most important sowings of Cabbage are those which are required to furnish a supply of plants through the spring, early summer, and autumn months. These sowings should consist of several varieties that succeed each other in coming into use. Very early kinds should not be sown too early in summer, as there is a possibility of their running to seed in dry weather. From the third week in July to the second and third weeks in August is the time usually chosen for sowing to obtain plants for setting out in autumn, these coming into use in spring, the time varying according to the season, soil, and locality. As a general rule the latter end of July and the early part of August are found to be the best time for sowing. Plants from seed sown at that time are generally ready to plant out by the end of September or beginning of October, and they then have ample time to get established before winter sets in. For autumn supply a sowing

should be made from the middle of March to the second week in April, and if the resulting plants are set out in June and July they will then come into use in August and September. If a second and larger sowing be made in the last week of April and the plants set out in July and August they will come into use from October to December. A sowing of a dwarf kind that hearts quickly made in May and again in June will furnish plants yielding nice little heads for use from October onwards, which with the greens produced from the stumps of those that have previously been cut will last until Spring Cabbage comes in. Two excellent varieties for this purpose are the *London Rosette Colewort Cabbage* and the *Hardy Winter Colewort*, the latter being the more suitable for winter use. Cabbage plants intended to stand the winter are best put out in firm ground which has been enriched for a previous crop, such as that which has previously carried a crop of Onions or other surface-rooting plants which have not impoverished the soil too much. The ground must of course have been well manured for the previous crop or good results cannot be expected. A firm stiff rich soil is best for Cabbages, for if grown in loose light soil they do not heart so well, neither is the quality so good.

Cabbage seed should be sown on light rich land or on that approaching more nearly to such a condition, and the plants should not be allowed to overcrowd each other before they are set out. As soon as large enough to handle, the seedlings should be pricked out from 6 to 8 inches apart, or be thinned out and the remainder transferred to their final positions as soon as they are sufficiently large. The distance to plant Cabbage apart depends on the variety grown ; but from 18 in. to 2 ft. between the rows, and from 15 in. to 18 in. between the plants in the rows, will generally be found sufficient if the ground is in good heart.

CUTTING.—A little more attention should be paid to this than is usually the case, as when a commencement to cut is too long deferred a great waste ensues. Supposing Cabbages of such varieties as will begin to turn in from the early part of March till the beginning of summer are planted in autumn, it is folly to wait until the heads in each particular instance become firm or hard before commencing to cut them, as a great many will, unless the demand is equal to the supply, then burst, go to seed, or rot. To obviate this, cutting should begin as soon as the hearts start to form on the more forward of the plants ; and as the stems will break and put forth sprouts which will ultimately form hearts, no loss but a gain really accrues, as they will be fit for cutting before or by the time the first crop of heads is finished. It is the rule in many gardens to reserve the main lot of old plants, after the hearts have been cut in spring, for the purpose of securing a yield of the

hearted sprouts referred to over a long period. That the supply may be an abundant one care is taken at the first cutting to remove no more than the heart portion or such as is actually required for cooking, as the greater number of leaves left on the stems the more plentiful will be the yield of sprouts, or "collards" as they are sometimes termed. If the ground is well stirred and a good mulch of short rotten manure or a dressing of a suitable fertiliser applied, the plants will continue yielding a succession of sprouts for nearly a whole year round. To sum up: cut Cabbages, even if you have to give them away, before the hearts get too far advanced or too fully developed, when there will always be a continuance of young and tender heads coming on.

The Cabbage is one of the most important of green vegetables for market-garden culture, and although not considered by many so profitable on account of its gross feeding character, it comes into use when there is little else to send to market, and often realises high prices. In spring large areas of Cabbages may be seen in the various market gardens round about London. Those sent to market in April, May, and June are the produce of seed sown in July, the plants being put out in September or early in October. Successional crops are raised in spring as soon as the weather is favourable. If sown too soon the young leaves become damaged by frosts, especially if these occur after a period of mild weather.

Enfield Market is grown extensively in the market gardens about London. It is one of the oldest in cultivation and one of the best, and for this reason growers generally save their own seed and take great care that their stocks of it do not get crossed with other sorts. The sowing for the principal crop of this variety is generally made about the end of July and up to the middle of August, on poor ground if possible, as in that case the plants come up stocky and hardy and stand the winter well. On rich ground a soft rank growth results which is more susceptible to injury. The sowing is as a rule made in beds 4 ft. in width, which is found to be more convenient for hoeing and weeding. When large and strong enough to be transplanted the plants are set out on ground cleared of Onions or Potatoes, and a second batch on ground cleared of Celery, French Beans, or Vegetable Marrows. Every vacant space, under fruit trees or elsewhere, is planted with Cabbages. In planting, the ground is lined off into rows 30 in. apart, and in these the plants are set 15 in. asunder. Between every two rows another is then put in, thus making the whole of the plants stand 15 in. apart each way. Early in spring the alternate rows of plants and every other plant in the lines are pulled and sold as Coleworts. This admits of the permanent crop having ample space for development and coming to maturity.

With a view to subsequent plantations, which are made all through the winter wherever ground becomes vacant, the young plants are taken from the seed bed and pricked out into other beds some 5 in. to 6 in. apart in order to keep them fit for planting. In this way many of the plants are kept till spring, when they are set out to form a succession to those planted in autumn, and to come in before the produce of the spring sowings made late in February or early in March to furnish Cabbages from June to August. The plants from this sowing are put out in lines 2 ft. to 2½ ft. apart, and in the intervening spaces are put lines of Lettuces, a plant of which is also put between every other Cabbage in the rows. In May the tying up of early Cabbages may often be observed in market gardens round London and elsewhere. This is done in a similar manner to that adopted in the case of Cos Lettuces. The outer leaves are carefully folded round the hearts and the whole secured with a withy or piece of bast or raffia. There are several good reasons for the practice. The hearts being protected from the weather develop more quickly than they would otherwise do, and are more easily handled in gathering and packing for market. Early Cabbages, the leaves of which are very brittle, would lose half their value if some precaution of this kind were not taken to prevent damage being done in the loading and unloading.

Red Cabbages are sown in March and July, but the best produce is obtained from sowings made in the latter month both in private and market gardens. The plants in the latter case are set out in rows 3½ ft. to 4 ft. apart, and the plants stand about 3 ft. asunder in the rows. As this crop stands until the heads are large and solid, a piece of rich ground is devoted to it and intercropped with Potatoes, ordinary Cabbages, Lettuces, French Beans, or other vegetables of a similar nature.

VARIETIES.—In addition to the varieties illustrated and described in the body of the work, the following are deserving of mention, as they represent the best types of Cabbages in cultivation at the present day :—

Harbinger.—This, without doubt, is one of the earliest Cabbages for spring use. From a sowing made late in July, small compact hearts may be had in favoured districts ready for cutting late in February or early in March. The growth is small and compact, and the plants can be set out as close as 15 in., both between and in the rows. It is of first-rate quality. It is an ideal Cabbage for private gardens, and one of the best for autumn sowing.

Early April.—A distinct early Cabbage much larger than the preceding, compact in growth and coming into use, as its name denotes, early in April. Excellent for autumn sowing.

Ellam's Early.—A valuable early variety coming into use in mid April and early in May. Growth more spreading than in the

preceding varieties, hearts from medium to large in size, according to soil. Good for autumn sowing.

Flower of Spring.—A fine early Cabbage for April and May supply; similar in habit of growth to the last-named variety, and forming compact well-shaped hearts of first-rate quality. First-rate for autumn sowing.

Wheeler's Imperial.—An excellent early variety in every respect, and much esteemed by many growers for spring cutting. It should be sown in autumn for the latter purpose.

Early Offenham.—A Cabbage much grown for early cutting by market growers round London and in other parts of the country.

Early Rainham.—Like the preceding, this is an excellent Cabbage for market, and like that variety should be sown in autumn.

Improved Nonpareil.—One of the best for autumn cutting.

Main-crop.—Excellent for late autumn use.

Christmas Drumhead.—A fine variety for cutting in mid-winter.

Winnigstadt.—This is a very fine cabbage and very distinct, but it is not by any means fitted for early spring use as some people are led to believe. If sown in the autumn and planted out with the idea that they will come in in the spring, the result will be very disappointing. The plants grow to a great size, but form no hearts, and consequently are of no value. If seeds, however, are sown in May or June and the plants given a good larder, fine hearts will in due course be formed, and which will come into use from November to January, and be found of excellent quality. In our opinion this early winter cabbage is superior to Savoys, which, however, are useful later. By growing *Winnigstadt* there is no need for early Savoys, which are in our opinion not required until January, after they have been exposed to the frost, the quality then being very much improved in that the rank flavour is absent.

London Rosette Colewort.—The best for autumn and early winter use.

Hardy Green Colewort.—A fine variety for winter use.

ONIONS FOR EXHIBITION

Those who grow the handsome bulbs now forthcoming at our vegetable shows up and down the country in the autumn, purchase now, or as soon as the seeds can be had, a packet of a good stock of *Ailsa Craig*, *Cranston's Excelsior* or *Premier*. Then early in February growers for exhibition get one or two shallow wooden boxes according to the number of plants required, bore holes in the bottom for drainage, and put into each a layer of rotten leaves or well-broken horse-droppings with on top an inch or more, as the case may be, of rich soil with which has been well mixed some sharp silver sand. Be careful as to the sowing of the seed.

The usual way is to use a very small stick or a pencil with which to make holes a quarter of an inch deep and about half an inch apart all over the surface of each box, dropping one seed into each, covering them up and watering through a fine rose, then standing in a frame close up to the glass and keeping close until the seedlings appear. If the sun shines strongly it is advisable to shade the boxes in order to prevent the soil becoming too dry. Directly the seedlings appear, give all the light possible, and thus encourage the plants to become stocky. During the time the seeds are germinating get some other boxes filled in the same way as above detailed, and when the seedling onions are, say, 4 in. high lift each one carefully, so that none of the roots are injured, and dibble them into the newly filled boxes 2 inches apart each way. Return the boxes to the frame and keep close until the young plants are growing freely, and when they have got a good root-hold they may have plenty of air. Towards the end of April or in the early days of May the plants, after having been well hardened off, may be carefully lifted from the boxes with a hand-fork or a trowel and planted out in rows 18 in. apart and 10 in. apart in the rows.

The ground in which these large exhibition bulbs are to be grown should have been in the previous winter or in the early spring trenched to a depth of from 24 in. to 30 in.—as Onions are very deep rooting—and had worked into it, not only well down, but also near the surface, a good dressing of well-rotted manure, choosing cow manure if the soil is inclined to be light. This should have been done some few weeks before the time for planting out the Onions comes, in order that the soil may settle down. When the young plants are growing freely, and the weather is dry, occasional doses of liquid manure are very beneficial and help swell the bulbs. Nitrate of soda is also good, but it should be given at the rate of no more than 2 lb. per rod, as it is apt to encourage leafage and softness of the bulbs. Top dressings of soot are very helpful, but such are in our opinion better when worked into the soil when the ground is being prepared. As was said above, Onions are very deep rooting in well-trenched soil, and cases have been known where the roots were found at a depth of 2 ft. In the case of Onions there is no need to grow them in fresh quarters every year, in fact we know of a gardener who never used to even dig the onion quarter, the soil of which was very light. After the year's onion crop had been harvested he used to procure from the home farm fresh cow manure and lay it over the onion bed to a thickness of 6 in. This was allowed to lie until the time came round in the following spring for sowing, when the manure, from which all goodness had been washed down into the soil, was raked off, the surface

levelled, the lines drawn, and the seed sown. This plan was followed every year, and there always were fine crops of good-sized bulbs which invariably kept well.

PEAS

With every suitable appliance the Pea season in the British Isles may extend from the middle or end of June until the end of October, and in exceptional seasons as late as the second week in November. Peas gathered earlier than the period stated are grown under glass, and the very late peas are, as already stated, mainly dependent upon the season. The best months for Peas are June, July, and August. In warm situations the produce of the early south border begins to turn in about the end of May, and green peas are common enough in June, but July and August are the months for Marrow Peas. In August and September, unless the land is good and the treatment liberal, and first-rate in every respect, there is always the possibility of a falling off both in regard to crop and quality, so that after July successful returns are mainly contingent on good cultivation, as shall be presently shown.

The First Early Peas.—These, where glass is sufficient to allow for their culture, will comprise several batches in pots of 8 in. and 10 in. size. The seed should be sown the first week in January, varieties to consist of approved dwarf and half-dwarf early kinds. The plants should be brought on steadily in a pit or house close to the glass with just the smallest amount of artificial warmth, as Peas do not force well. A steady regular growth in a very light position, with a temperature never exceeding 45° to 50° at night, will be best. Ventilation must be given on every suitable opportunity.

The first sowing in the open air may take place the first or second weeks in November, provided the locality is favourable and the soil well drained and warm. Under less favourable conditions it is best not to make the first sowing until January, the time for doing so varying according to climatic conditions. In cold, wet districts February is quite early enough to sow outside. Very frequently first early Peas are raised under glass, and when hardened off are planted as early in March as the weather permits. The seed of some favoured variety is sown in pots, troughs, or on sods of turf, and placed in heat, when they soon germinate, when in due course the plants are hardened off and planted on a warm south border at the time mentioned. A ridge of earth is drawn up on each side of the rows as a shelter, and a few evergreen boughs are worked in amongst the ordinary sticks to afford additional protection. To keep up a regular supply there must be frequent sowings. But taking account of, and giving due

weight to, the fact that first early Peas sown during the months of January, February, and the first half of March will not vary more than a week or ten days as regards turning in, there is not much use in making successional sowings of these alone during the period named. The general rule is, after making the first sowing, to select and sow two or more varieties such as a first early, a second early, and a mid-season one on each occasion, by which means a regular succession is assured. It is useless to specify when these sowings should take place, as weather conditions at that time of year are so variable, but in the last half of March and from April onwards it is best to make fortnightly sowings, or to sow again as soon as the preceding crop is just through the ground.

As to the time when peas may be expected to be ready for use, the following dates may be taken as approximately correct. They are founded on a good deal of experience and careful note-taking, and, making due allowance for the effect of latitude on climate and the variations of soil and seasons, may be safely acted upon. First early peas sown before Christmas or not later than the first week in January to the end of February should be fit to gather the last week in May. Those of a second early type sown from the end of January to the end of February should be fit to gather from June 10th to 20th. A mid-season variety sown from February 20th to March 10th should be fit for use from June 20th to the middle of July. Marrow peas such as *Veitch's Perfection* and *Ne Plus Ultra* sown from the middle to the end of March should be ready about the middle of July and onwards. The tall Marrows sown first and third weeks in April and first and third weeks in May should produce a supply from the middle of July till the close of the Pea season. Some people sow first and second earlies once or twice in June, and the late Marrowfats often do well sown as late as the middle of June.

The Late Marrow Peas.—The crop is so important that every expedient should be adopted which can in any way enable it to pass through its difficulties without much suffering. Men may be seen laboriously watering peas in a hot, dry time when less than half the time in preparatory work at the right season would have given more satisfactory results. Mark out the sites in January or February where they are to be grown, open a trench and fill in with a manurial compost—Peas dislike rank manure. Save the usual decaying matters which accumulate about a garden, mix with a proportion of manure from the stables or pigsty, with a little soot, etc., blend the whole together and work it into the trench where the peas will by and by be planted. When this is done early in the season the compost will have become mellow and in a fit condition for the roots of the plants to work into at once. As much

of the soil taken out of the trench may be thrown back and worked up with the compost as will fill the trench to the original level. The bottom of the trench should also be broken up. The stations for late peas should also be got ready at the same time, and a peg driven down at the end of each row, so that when the time arrives for sowing all that is necessary is to stretch a line from end to end and draw a drill 5 in. to 6 in. in width and 3 in. to 4 in. in depth.

SOWING AND GATHERING.—The large Marrow Peas should be allowed room to branch out, which must be provided by sowing the seed thinly in the drills. From 2 in. to 3 in. apart all over the drill is not too much space to allow; and this will necessitate the careful distribution of the seeds individually by hand. In dry weather the drills should be soaked with water and the Peas covered with the dry soil drawn from the drills. If mice are likely to be troublesome, dress the seeds with red lead or else keep traps set in the vicinity of the Pea rows. To do late Peas justice the rows should when possible run north and south and stand from 6 ft. up to 21 ft. apart. Dwarf-growing crops of other vegetables can be grown between them. Mulching with manure is a useful expedient, and in connection with a good preparation of the ground at this season should render watering, except in very hot weather, unnecessary. The mulch, which should consist of half-decayed stable manure or similar material taken from an old hotbed, should be spread on either side of the rows of Peas 18 in. or so wide and 3 in. or 4 in. thick. Gathering should be done carefully and as soon as the Peas in the pods are sufficiently large enough for use. Allowing them to become too old before doing so not only renders them of less value and unpalatable, but by impoverishing the plants causes a considerable reduction of crops. In some cases a secondary crop of young shoots and blossoms will develop and a further yield of Peas, which will be very useful, will be produced.

Tall and Dwarf Peas.—Dwarf and half-dwarf Peas are very useful where sticks or supports cannot easily be obtained; but where sticks do not cost much they are best for the main crop tall Peas, which are more prolific. In case of all Peas requiring support—and if possible even those of dwarf habit should be supported—the sticks should be placed to the rows early and the tops levelled off with a pair of shears. The pieces cut off should be used between the large sticks at the base to prevent the plants straggling through and to induce them to grow in an upright direction. Nearly all market gardeners near London grow Peas largely; and although French Peas are sent to market early in May and sold at cheaper rates than English growers could afford to produce them, preference is always given to home-grown Peas, for which there is always a good demand until about September. Until the end of October, however, fine samples of the *Ne Plus Ultra* type may be obtained

ready shelled in the market, the produce in many instances of Surrey, Bedfordshire, Essex, and adjoining counties, from whence comes the great bulk of both early and mid-season Peas to Covent Garden. In making early sowings it is a practice with market growers to choose a fine day to break down the ridges (the ground having previously been manured and cast into ridges), measure off the lines and draw drills in the forenoon, leaving them open till the afternoon, so that the soil in them may dry a little and become warmer; then to sow the seeds and cover all up before evening. The drills vary from 2 ft. to 3½ ft. apart according to the vigour of the sorts which are to be sown. When the rows are close together, Lettuces and Spinach are used as intercrops, but when more widely distant from each other Cauliflowers are then usually planted. It many instances the first sowing of Peas is made in December on a warm border; but considering they must be sown a little deeper than in January, and the risks to which the seeds are liable from mice, birds, insects, and damp, it is a much-disputed point among good growers whether the December sowing has any advantage over that made in January, many contending that the produce of the latter is quite as early as that of the former and the crop less subject to risks. Different growers have a preference for different kinds, but the early dwarf sorts are those most grown on account of their quick returns, the small space they occupy, and because they require no stakes.

Peas are seldom staked in market gardens, the haulm being allowed to lie on the ground. Gathering is a matter well attended to, as the more closely the pods are picked the longer do the plants continue to bear. Some market gardeners save their own seed, others grow Peas for seed only. In this case the haulm is frequently shifted from one side of the row to the other in order to prevent the pods from rotting or from being destroyed by slugs, snails, etc., and to expose them to the air and sun to cause all to ripen alike. When ripe the haulm is pulled up and taken indoors and when the seed has become dry it is shelled or thrashed out during wet weather.

Select List of Peas

Early Dwarf Varieties

Pioneer.—A first-rate dwarf Pea, height about 2 ft., good cropper.

Chelsea Gem.—An excellent dwarf kind, height 18 in., good cropper.

English Wonder.—Well-known dwarf Pea, height 2 ft., good cropper.

Taller First Early Varieties

William the First.—A first-rate early round-seeded Pea, height 4 to 5 ft., good cropper.

Bountiful.—A vigorous free-bearing round-seeded variety, height 5 ft.

Early Giant.—A first-rate wrinkled marrow, abundant cropper, height 5 ft.

Duchess of York.—A fine early wrinkled marrow, good cropper, height 4 to 5 ft.

Second Early Varieties

Centenary.—A first-rate variety in every respect, height 5½ to 6 ft.

Quite Content.—A prolific variety, height 5½ to 6 ft., pods extra large.

Stratagem.—An excellent semi-dwarf kind, height 3 ft., free cropper.

Prince of Peas.—A first-rate second early, and abundant cropper of splendid quality.

Incomparable.—A vigorous-growing variety about 4 ft. in height, very prolific.

Duke of Albany.—Very fine free-cropping Pea, of the highest quality, height 6 ft.

Main-crop Varieties

Pride of the Market.—A sturdy free-cropping variety, height 3 to 4 ft.

Abundance.—A very fine prolific Pea of excellent quality, height 4 ft.

King Edward.—A prolific variety, height about 4 ft., excellent quality.

Prince of Wales.—A strong-growing variety, excellent cropper, height 4 ft.

Masterpiece.—A sturdy free-bearing Pea, height 4 ft.

Veitch's Perfection.—A well-known superior Pea, an abundant cropper, height 4 ft.

Eureka.—A very free-cropping variety, of excellent quality, height 4½ ft.

Autocrat.—A vigorous, free-bearing Pea of superior quality, height 5 ft.

Ne Plus Ultra.—One of the best late sorts, a good cropper, quality excellent, height 5 to 6 ft.

Gladstone.—A fine late kind, an abundant cropper, height 5 ft.

Continuity.—A prolific late variety of great excellence, height 4½ to 5 ft.

POTATOES

CULTURE.—When grown in the open ground Potatoes are usually planted from the end of March, or in April and early in May according to locality and climatic conditions in drills or

holes made with a hoe or "setter" some 4 to 5 in. in depth, with a distance of 12 to 18 in. between the "sets" according to their season of use or when the crop matures, and the vigour of growth of the varieties grown. Entire tubers of medium size are the best for planting, and they should in all cases, especially so in regard to early and second early varieties, be exposed some time beforehand to the influence of light and air, so that, at planting time, they will have green sturdy shoots on them from 1½ to 2 in. in length. In this case care must be taken when planting not to break off the shoots. The object in planting these sprouted tubers is not only to gain time in regard to growth, but to secure greater uniformity and vigour, while gaps or losses in the rows arising from tubers failing to grow is obviated, and last, but by no means least, the maturation of the crops is, to a great extent, accelerated. The tubers should be covered at the time of planting with from 4 to 5 in. of soil, and the general practice is to keep the soil between the rows well hoed, and to earth up as soon as the stems have grown to a height of 6 or 8 in. Earthing-up is very essential, as it has the advantage of not only causing the tubers to lie more closely together round the roots of the plants, but prevents those which lie uppermost or nearest the surface from becoming exposed, while the crop is the more easily lifted. Potatoes ripen, or at least become fit for use, early in June to the end of October, according to the varieties grown. They may be forced under glass or in frames on mild hotbeds. In the former case large pots or boxes of suitable depth may be utilised for the purpose. Forcing may be commenced in December or January, and continued up to the middle of March. The crop will be ready for lifting in from two to three months after planting, less time being required as the season advances between the time of planting and when the tubers will have become large enough for use.

Select List of Varieties

First Earlies

Epicure.—White, round, heavy cropper of good quality.

Eclipse.—White Kidney, a heavy cropper, of fair quality.

Early Favourite.—White round, good cropper, said to be of good quality.

Duke of York.—White Kidney, medium cropper, quality first-rate; excellent for frame and pot culture.

May Queen.—White Kidney, good cropper, quality excellent. Good for forcing.

Sir John Llewelyn.—White Kidney, good cropper, of excellent quality.

Midlothian Early.—White, pebble-shaped, fair cropper, quality good.

Sharpe's Express.—White Kidney, excellent cropper, quality first-rate.

Sharpe's Victor.—White Kidney, fair cropper, first-rate quality. Excellent forcing variety.

Second Earlies

Snowdrop.—White Kidney, abundant cropper, of excellent quality.

Gladiator.—White Kidney, very heavy cropper, of fair quality on heavy soil.

British Queen.—White, shape variable, heavy cropper, quality excellent on some soils.

Great Scot.—White, round, said to be a heavy cropper of good quality.

King George.—White Kidney, said to be a good cropper.

Main-crop and Late Sorts

Windsor Castle.—White, oval-shaped, good cropper, quality first-rate.

King Edward.—Kidney, white, lightly coloured here and there with pink. Abundant cropper of excellent quality.

Up-to-Date.—White, round, abundant cropper; quality first-rate.

Arran Chief.—White, round, heavy cropper, quality excellent on some soils.

Long Keeper.—White, pebble-shaped
Crofter.—White, pebble-shaped
The Lochar.—White, round
The Chapman.—White, round

} Reputedly heavy croppers.

SPRAYING.—The proper proportions of the sulphate of copper and lime solution for spraying Potatoes to check the disease (*Phytopthora infestans*), is one pound of each. Tie the sulphate—which is blue-stone—in a coarse piece of canvas and put into a wooden tub holding about 10 gallons. Pour over the sulphate 2 gallons of boiling water and let it dissolve. In a pail dissolve the lime, which should be fresh, and when clear add the water to that in the tub. In addition to the above, dissolve in hot water 1 lb. of common treacle, and add this. Then fill up the tub. The solution should be applied about the middle of July, with a second application three weeks later. It must be applied to the foliage of the Potatoes in the form of a very fine spray through a knapsack sprayer, or by the aid of a spraying syringe. It is best done in the evening.

SPROUTING THE SEED TUBERS.—Though good results may be possible from tubers that have not been put into the sprouting boxes in February or March—that is, from four to six weeks before planting—it is generally conceded that the better plan is to store

the seed tubers in boxes during the winter. Leaving out the relative effects of winter or spring boxing on the subsequent crop, there are other valid reasons for giving preference to autumn or winter boxing. In the first place, there is, as a rule, more spare time for carrying out the work in the fall than in the spring, when there are so many other things requiring attention. In the second place, there is no way in which the seed tubers may be kept so safely or stored in smaller compass than in the boxes utilised for the sprouting of the tubers. The third and most important recommendation is that the tubers can be overhauled and examined as time permits, should that be found necessary, while the sprouting can be regulated to a nicety by placing the boxes in a high or a low temperature, and exposing the tubers to light and air or shielding them from the latter as circumstances may require. The size of box recommended for general use is, length 24 in., width 12 in., and depth 3 in. The corner-pieces should be 7 in. in height and sufficiently strong for the boxes to rest one on top of the other when piled for winter storage. The handle-bar should be strong and tenoned into the end-pieces, the whole forming a light, handy, and durable receptacle which, if carefully used, will last for years. Such boxes are not very expensive, each box holding about 20 lb. of Potatoes, varying with the size of the tubers. The filling of the boxes involves no particular care or trouble, and when completed they may be arranged one on top of the other to any height that may be found convenient.

Apart from the effect of light and air upon the length of the sprout, exposure for some time before planting is all-important, in order that the sprout may become tough, and thus not so liable to be broken when handled. A few days' exposure will be sufficient to make the sprouts quite tough, and so less liable to injury when planting is being done. When storing the boxed tubers care should be taken that they are not placed where frost is likely to reach them. On the other hand they should not be given too high a temperature or sprouting will be too rapid, and they will become spindly and drawn. As a rule they will do very well in barns or sheds, provided they are protected from cold winds and covered with straw or sacks when frost is severe and protracted.

At the time of planting the sprouts should be about 2 in. long, and the management of the boxes should be so carried out that this length of sprout should be developed as uniformly as possible all over the box. There is no valid objection to longer sprouts, except that there is a danger of some of them being broken off unless they are very carefully handled. Generally, the sprouts are apt to fall short of rather than exceed the desired length, in which case, in order to check growth and prevent their becoming drawn, the best way is to expose them to the light. If, on the other hand,

it is found that the sprouts are slow to extend, then all light should be excluded.

RHUBARB (DAW'S CHAMPION)

An early Rhubarb is most useful when forced or when allowed to come away naturally. Of the newer varieties that at the head of this note is of great value, indeed by some it is preferred to the well-known *Hawke's Champagne*, an old kind, well known for its fine colour, earliness, and quality when obtained true. It is largely grown by one of the Covent Garden Market men, who has shown it frequently at the winter meetings of the Royal Horticultural Society, receiving both an award of merit for it for its earliness and a first-class certificate for it for its excellent quality. Of the several varieties of Rhubarb that have been put into commerce of recent years it is one of the best. Even so early as January we have seen the crowns growing freely with only a handful or two of loose litter thrown over them. For forcing it is unequalled, the bright red colour permeating the whole stalk. It is a very strong grower, quite different in this respect from some of our very early varieties of former days.

ROTATION OF CROPS

This is one of the most important points in the culture of vegetables. So much, however, depends on the nature of the soil, the size of the garden, and the different vegetables required that no hard-and-fast rule can be laid down in this matter. A change of ground is beneficial to most vegetables, though there are many exceptions, as in the case of Onions, Shallots, and Artichokes, which may be grown from year to year on the same piece of ground. The treatment for Celery brings the ground into a high state of cultivation, and most vegetables do well after Celery. Carrots, Parsnips, and Beet should follow crops for which the soil was specially manured, as the application of fresh manure just before sowing is detrimental to them. All the Cabbage family should never be allowed to succeed each other, but should generally follow after tap-rooted vegetables. The soil for tap-rooted vegetables should be thoroughly well worked without the addition of any manure.

TOMATOES

Defoliating Tomatoes.—Many amateurs run away with the idea that Tomatoes when exposed by the removal of the leaves ripen more quickly. This is an erroneous idea, and the sooner it is dispelled the better—that is, by those who treat the plants in such a barbarous fashion. One may often see the plants quite denuded of all the leaves, only a small particle of a leaf-stem

or two remaining at the extremities. Plants that are growing very strongly in a small house may be slightly denuded of some of the gross-growing leafage without any material injury. Especially is this the case when the leaves cover the soil and impede the daily watering of the plants. Let any one visit some of our large market gardens where Tomatoes are grown, and note how little thought is paid to removal of the leaves of Tomatoes and how freely ripe fruits are obtained from day to day.

Against hot sunny walls in the open air the foliage is of great value in protecting the swelling fruits from the sun, and in this way prevents scalding. Tomatoes do not require the sun to shine directly on to them to impart early maturity and colour. The plants themselves need all the sunlight possible, but unless the leafage as referred to above is over-luxuriant there is no need for repressing it. By all means remove the growths which spring from the leaf axils, and the sooner this is attended to the better both for the plants and the crop. In the case of outdoor plants, when four to six trusses, according to the strength of the plant, are set, pinch out the point at one leaf beyond the topmost one. Very strong plants may carry from six to eight trusses of fruit if they are early—that is, planted out early. Late-put-out plants would not have time to bring so many to maturity before they were overtaken by frost. If stopped—as advised—early, the fruits swell more quickly and ripen sooner. Against walls staking and tying the plants to the stakes are better than nailing, driving the stakes into the ground and securing them to the wall with a nail and shred.

TOMATOES FOR WINTER

Whatever advance may have taken place in the last few years as regards improved varieties of Tomatoes, we have not as yet obtained a really good sort for winter fruiting, but will have to rely more on methods of culture in order to secure satisfactory results. As far as a supply up to Christmas is concerned there is no difficulty in securing this from the plants that have fruited during the summer—that is, provided they have been grown in light, well-heated structures. It is after this time that the supply runs short. Many people are often compelled to do away with plants in the early winter on account of the house being required for another purpose, as at this time it is impossible for the plants to be satisfactory when subjected to a low temperature, or on the other hand a too high and moist one. It is to meet such cases as these, where winter Tomatoes are needed, that it is very essential to raise a fresh batch of plants and grow them on for winter fruiting. On plants raised in August and carefully attended to there will be time for a crop to set by the end of

October. After this time the days are generally dull and moist, conditions not favourable to the setting of the fruit. For winter work only medium growers and free setters should be selected.

As regards the mode of increase, seedlings are preferable to cuttings, as though cuttings might naturally be expected to come into bearing before seedlings, and consequently answer better for winter fruiting, seedlings if carefully tended will fruit quite as early, and in every other respect be satisfactory. The plants must be stocky, as drawn and weakly plants are of no use, since by the time these have become fit to produce fruit the season is too late for the flowers to set.

In growing winter Tomatoes pot culture is preferable to planting out, as in pots the plants are more under control, with the added advantage that the house is at liberty for other plants until the time comes round for housing the Tomatoes. The best place for winter tomatoes is those light houses or pits in which cucumbers and melons have been grown during the summer, as directly these are over they can be cleared out and the Tomatoes put in their place. The plants should be in their winter quarters by the beginning of October or the middle of the month at the latest. In our experience one of the best winter fruiting sorts is *Winter Beauty*, though the old *Large Red* is also good, the only objections to this variety being its poor shape and quality.

TURNIPS (YELLOW-FLESHED)

It is very strange that the yellow-fleshed Turnips are so favoured in the north, while they are but seldom grown in the south. When cooked, there can be no question as to the superior quality of the yellow-fleshed Turnips, the flesh being firmer, of better flavour, and when served, in the opinion of many, more attractive. One often hears it said that the flavour of the yellow-fleshed Turnip in the south is strong, but given good culture in the way of deep, well-manured soil, and grown on without a check, this is not so. The cultivation has a great influence on the flavour, and it very often happens that the white Turnips are not only hard, but bitter, and for this reason very objectionable. In the kitchen the yellow-fleshed Turnips are by many cooks preferred to the white-fleshed varieties.

VEGETABLE DISEASES

The Bean Aphis.—This, known as The Black Dolphin, is the worst enemy of the Broad Bean, and unless steps are taken to destroy it, it very soon ruins the crop. The best way to get rid of it is to remove the tops of the plants, and if aphides are present to burn them, then syringe the plants with any insecticide sold for destroying black and green fly. Syringing with soap-suds on two or three consecutive days has also been found effective.

Cabbages Clubbing.—The best remedy for this is, without doubt, gas-lime, which should be applied to ground, whenever empty, in which clubbing has been prevalent. This should be applied at the rate of 2 bushels to 3 rods if the clubbing has been bad; if not, then allow 1 bushel to 2 rods of ground. After lying on the ground for from four to six weeks, dig the dressing in. If gas-lime is not to be had, then a dressing of ordinary lime at the same rate will do good. Be careful not to plant any of the Cabbage family on the infected ground for at least two years. Potatoes, Seakale, or Rhubarb may occupy the ground, or Onions, Parsnips, or Beet may be sown thereon—in fact, any crop other than one of the Brassica family.

Celery Leaf Blight.—This, during the past few years, has been prevalent, and is very often the cause of the partial or complete failure of the crop. The disease may be recognised by local crumpling of the leaf, followed by the appearance of spots on the surface. The leaves rot away, after which the stems decay, and finally the whole plant disappears. As the spores of the fungus remain in the soil for some time afterwards, Celery should not be grown in the same plot of ground for several years. Since the disease is carried in the seed, growers of Celery are advised to disinfect their seed. In order to do this hydrogen peroxide should be used. When purchasing this disinfectant a solution known as 20-volume solution should, if it can be had, be obtained, but if not, then a 10-volume solution may be used. The seed to be treated is placed in a glass or earthenware vessel, and enough of the hydrogen peroxide poured in to cover the seed. Stir the mass thoroughly so that all the seeds become wet, allow the seeds to remain in the liquid for three hours, then pour the liquid off and reserve it for treating a second batch if need be. Before sowing, spread the seed out thinly to get dry. Do not return the seed that has been disinfected to the original packet, or else some of the spores of the fungus causing the disease may be adhering to the paper and reinfect the seeds. There is a possibility of arresting and finally subduing the attack, if, on the first signs of the

fungus being noticed, the plants are sprayed with Bordeaux mixture; but if the disease has got a firm hold, then spraying will avail nothing. After the Celery has been dug, and if very badly attacked burnt, give the ground a good dressing of freshly slaked lime, or one of the several soil disinfectants now on the market.

Celery Maggot or Leaf Miner.—This pest, which in some seasons disfigures the leaves of Celery very badly, is very difficult to combat, as the maggot is encased inside the skin or leaf covering, consequently impossible to get at with any insecticide. The only remedy is hand-picking the affected leaves and burning them. After removing the leaves that have been very badly disfigured, give the plants a good dusting of soot. Given repeated dressings of soot to check further attacks of the fly, a healthy growth will follow, and if this is kept clean there will be but little fear of a severe attack.

Mint Cluster-cup Fungus (*Puccinia menthae*).—There is no cure for this, as the fungus is in the stems, in the lower part of which it passes the winter. When this fungus attacks a bed of mint the best thing that one can do is to pull up the plants at once and throw them on the fire, making a fresh plantation in another part of the garden with plants from an untainted source. It is advisable, too, to give the ground where the fungus-infested mint has been growing a good dressing of lime, so as to destroy any fungus spores that may be present in the soil.

Onion Fly (*Anthomyza ceparum*).—This lays its eggs at the base of the young plants in April and May, and the grubs when they hatch out begin feeding on the bulbs and burrow into the hearts of the plants, which very soon collapse. In the case of a bad attack the plants can be pulled from out of the drills, as the roots are then partially or wholly destroyed. When in this condition every affected plant should at once be pulled up and destroyed. Shallow sowing renders the plants liable to attack, as the base of the plants being on the surface the flies are better able to find a footing. If deeper sowing is practised, the vulnerable part of the bulb is then buried. To act as a protection it has been found that by drawing soil up to the plants on either side of the lines the fly is unable to get at the base. Some growers water the soil between the lines with paraffin and water, while others again strew sand saturated with paraffin between the lines. We have tried both these so-called remedies, but in neither case did any good results follow. The best way we find when this pest has been troublesome is to grow the onions in another part of the garden as far away from the infected area as possible, sowing the seed as soon as the ground is in working condition, and rather deeply so that the outer cuticle of the bulb may be hardened and so

impervious to the attacks of the fly when the egg-laying time arrives. One of the several soil disinfectants should also be dug into the soil or sufficient lime and salt to whiten the ground spread on the surface and forked in. Plants raised in the autumn or those raised under glass in the early part of the year are seldom attacked ; they are too hard and buried too deeply for the insects to get at them. In many cases where the outdoor sowing of onions has been a failure, growers have abandoned this mode of culture and raised the plants under glass instead. These when large enough are pricked into boxes, and in some cases potted off singly and grown in frames. After having been well hardened off they are planted out during April. It has been found that grown in this way the losses have been reduced to a minimum. A grower of our acquaintance uses nothing but soot, and he never has any trouble either with the onion fly or the carrot fly. A good preventive against the first inroads of the fly is to spray the young plants every few days with an emulsion made by boiling 1 lb. of soft soap in two quarts of water, adding half a pint of paraffin, then six gallons of water, working the whole through a syringe until it is a frothy mixture. If after the spraying is completed a good dressing of old weathered soot is dusted over the moistened plants the onions should be in great measure protected from the fly.

Potatoes, Wart Disease of.—This, known as *Synchytrium endobioticum*, is the worst of all diseases that affect vegetables. The unfortunate part of it is that unless checked it will very soon spread over a wide district. It is easily recognised by the ugly excrescences like warts that appear in the eyes of the tubers. When once a tuber or tubers have fallen a prey to this disease these tubers are of no value, and should be at once burned to prevent the spores getting into the soil. Very often the stems of the plants are attacked, this being indicated by greenish-white growths thereon. The warts on the tubers are at first of a dark-brown colour and firm, but as the season advances they change to almost black and are quite soft, finally rotting away and in decay emitting a most unpleasant smell. This is the time the spores are mixed with the soil, where they remain dormant, but still capable of causing serious loss should potatoes be planted on the infected ground. Never save any seed from the wart-infested tubers, as this is a certain way of still further spreading the disease. Potato growers both amateur and professional should look over their crop, not only during the growing period, but afterwards when the tubers are in store, and if any tubers with the least symptoms of the disease are found they should report the same, as wart disease is notifiable and severe penalties are attached to its wilful concealment. All infested tubers should be burned, and the ground from which they have been lifted dressed with gas-

lime which, having lain for some time, should be well broken up and dug in. Do not on any account plant potatoes on such infected ground, and when purchasing seed always stipulate that such has been grown on ground free of the disease. We have now varieties that are immune to this disease, and such should only be planted where the Wart disease has been present. It is therefore all the more fortunate that experiments carried out by the Board of Agriculture and Fisheries have demonstrated beyond all doubt, for the time being at any rate, the absolute immunity to Wart disease of certain varieties of Potatoes, many of which both crop and cook well. Some of the best immune varieties are :—

Early Varieties

Snowdrop.—A very shallow-eyed, white-skinned, pure white-fleshed Kidney potato of good quality.

Dargill Early.—A shallow-eyed, white-skinned, pale, yellow-fleshed, good cropping Kidney variety.

Edzell Blue.—A rather deep-eyed, purple-skinned, pure white-fleshed, heavily cropping, round potato of good quality.

Second Early Varieties

King George.—A shallow-eyed, white-skinned, white-fleshed, irregular-shaped variety of fair quality. This is one that if sprouted and planted early can be lifted almost as early as *Epicure*, but is liable to boil black later in the season.

Great Scot.—A rather deep-eyed, white-skinned, white-fleshed, very heavily cropping round variety of good quality.

Ally.—A shallow-eyed, white-skinned, white-fleshed, heavily cropping, oval to oblong variety of fairly good quality.

Arran Comrade.—A very shallow-eyed, white-skinned, white-fleshed, heavily cropping, flattened round variety of fairly good quality.

Late or Main-crop Varieties

Abundance.—Including the large number of differently named varieties of identical type. A shallow-eyed, white-skinned, white-fleshed, fairly good cropping, flat round to oval potato of good quality, but rather liable to late blight.

Tinwald Perfection.—A shallow-eyed, white-skinned, lemon-white-fleshed, good cropping, oval to oblong potato of excellent quality.

Kerr's Pink.—A rather deep-eyed, light-pink-skinned, white-fleshed, heavily cropping, round potato of excellent quality. Particularly good on heavy soils.

Majestic.—A shallow-eyed, white-skinned, white-fleshed, good cropping Kidney variety of good quality. The seed requires careful handling, and should be sprouted before planting.

Golden Wonder.—A shallow-eyed, russety-brown-skinned,

white-fleshed, light cropping, tapering, Kidney variety of the very best quality. Will crop well if the seed is sprouted and planted in well-cultivated loam and given a long season of growth. Probably the best-keeping potato known, and if kept till after Christmas probably the best eating.

Any of the above may safely be grown in infected soil with good prospects of success, and growers should endeavour to become familiar with the fitness of these sorts to local conditions, even if they are not yet troubled with this serious disease of the Potato. It is just possible that the raising of seedlings may in time check this terrible pest.

Potatoes, Black Leg of.—From reports received by the Board of Agriculture it appears that this disease is spreading in this country, black leg being common in crops of *King George*, *Great Scot*, *Majestic*, and *Ally*. It is possible that these newer varieties are more susceptible to this disease than those previously grown, so that the parasite has increased at a more rapid rate. In the year 1917 the disease was noticed in Scotland to be fairly common among the crops of Potatoes, and it is possible that the more extensive use of Scotch seed during the past few years has distributed the disease over a wider area. This disease is very destructive and causes serious loss in the Potato crops. The leaves wilt and turn yellow, then shrivel and die, the disease starting low down on the stem, the uppermost leaves being the last to succumb. When the leaves first begin to drop, the surface of the underground part of the stem bearing such leaves is more or less covered with brownish stains. This discoloration gradually extends up the stem, which in the end becomes quite black and very soon decays. Black patches also appear in the young tubers, which if the attack is severe soon rot. As soon as any of the potato plants show symptoms of this disease they ought at once to be dug up and thrown on the fire heap.

Tomatoes, Black Spot in.—This, known as *Cladosporium fulvum*, is a fungus which germinates soonest in moisture. In the morning, any moisture that may be accumulated through vapour rising from the soil during the night, becomes condensed on the fruits, and invariably finds its way to the lowest part of the fruit. Of itself, the moisture would do no harm were there no spores of the fungus in the house. The spores, however, settling on the fruit get washed down by the moisture to the apex of the fruit, and at once become active, penetrating through the tiny orifice left by the decaying bloom. Then it begins to spread, and preys upon the flesh, causing it to become black. Once the spot is seen on the fruits, a cure, so far as the affected fruits are concerned, is out of the question. All such affected fruits should at once be removed, and thrown on the fire. The

best cure for this trouble is to dissolve 10 oz. of sulphate of potassium—liver of sulphur—in two quarts of boiling water, adding two gallons of water, and thoroughly wetting the plants with this.

Tomatoes, Black Stripe of.—This is a fungoid disease, the origin of which, up to the present, is unknown. It is a parasitic fungus and attacks both the stems and fruit, but can only gain a footing when wounds are present in either or both; and once an attack has been experienced, it is very difficult to prevent its reappearance the following season. To prevent a second attack, all the soil in which the plants have been grown should be cleared out and burned. The house, too, in which the plants have been growing should be disinfected and scrupulously cleaned, while the soil that is to be used the following season should be sterilised by placing it over a fire on a sheet of iron and allowing it to become heated, almost to the point of being charred. To guard against a further attack of the fungus after the plants have become established, spray them with sulphide of potassium every other week or so right through the season, using 1 oz. of sulphide to 3 gallons of warm water, in which 2 oz. of soft soap have been dissolved. Of course, a greater quantity of the spraying mixture may be required, but the same proportions should always be followed. Avoid giving stimulants to such an extent as to cause the fruits to crack, and do not remove any more of the leaves than is absolutely necessary.

Tomatoes, Scalding of.—This is caused when, in the morning, the moisture condenses on the fruits because the house has been shut up too close, and the sun strikes them before they are dry, as very often happens in the case of grapes. Scalding, too, may to a great extent be caused by cutting away the foliage, which is all too common. Rich food is often given in excess, and without foliage to absorb such food it is taken up by the fruits, causing bad flavour, spot, and scalding. We do not denude other plants of their leaves in the same way as we see the Tomato treated, and when this is done it is impossible to prevent the scalding of the fruits when this severe cutting is carried to excess. The smooth-skinned varieties of the *Perfection* type scald much sooner than the corrugated kinds, the skins being probably more sensitive.

Tomatoes, the "Sleeping Disease."—The resting spores of this, known scientifically as *Fusarium lycopersici*, attack the delicate root hairs and rootlets of the plants, finally invading the whole of the roots and spreading up the stem. To make sure that the disease has been destroyed, it is well to burn all the plants that are tainted with it, at the same time removing all the soil, mixing lime with it, and replacing with fresh before replanting. Fresh plants should also be purchased from an untainted source.

The Turnip Fly.—A very great difficulty presented to every gardener in connection with the raising of Turnips is combating the fly when the seedlings are very small. No matter where sown, the fly in dry weather attacks the plants, being as destructive in one garden as in another, unless very drastic steps are taken to check it. Some people advise dusting the plants with soot or very dry soil, but such dressings seem to do but little good. Possibly, syringing the seedlings with Quassia extract may check its inroads for a time, but such spraying, to do any good, must be repeated every two or three days. Coating the leafage with soot and dirt may, for a time, check the fly, but such dressings, seeing they choke the pores of the leaves, must, in the end, be harmful to the plants.

One of the best aids to vigorous growth, and consequent freedom from the attacks of the fly, is found in rich soil, the drills, when drawn, being saturated with weak liquid manure, sowing the seed at once and immediately covering it with fine, dry soil, which, in addition to checking evaporation, helps the germination of the seeds. A cool and slightly shaded position is best for summer sowing, but the later sowings, at the end of August or early in September, should be made quite in the open. Some persons sprinkle the grass from the mowing machine over the newly sown breadths of Turnips, these furnishing some slight degree of protection. Whether the taste of the decaying grass is offensive to the fly, or the grass helps to cover the Turnips from view, is not certain. It is, however, a simple and easily applied mode of protection, which almost any one sowing Turnip seed in gardens can adopt. Carrying a long, freshly tarred board by two men over a breadth of Turnips, the board kept a few inches above the plants and in a slanting position, was found instrumental in capturing great numbers of the beetles.

INDEX

A

Agaricus campestris, 438
Allium cepa, 454
„ fistulosum, 475
„ lusitanicum, 476
„ Porrum, 350
„ sativum, 310
„ Schœnoprasum, 249
„ Scorodoprasum, 312
Anethum Fœniculum, 308
„ graveolens, 289
Angelica, 1
„ Archangelica, 1
Anise, 2
Anthomyza ceparum, 777
Anthriscus Cerefolium, 240
Apium graveolens, 227
„ Petroselinum, 478
Arachis hypogæa, 549
Artemisia Absinthium, 754
„ Dracunculus, 705
„ vulgaris, 438
Artichoke, black English, 9
„ *Brittany, flat-headed*, 7
„ Chinese or Japanese, 671
„ Florence, 9
„ French, 3
„ Globe early purple, 8
„ gray, 8
„ *Jerusalem*, 10
„ „ *Imperial Yellow*, 10
„ „ name, fallacy of, 758
„ „ *Potato*, 11
„ „ the white, 758
„ oblong St Laud, 9
„ of Brittany, copper-coloured, 8
„ „ Carmarque, violet Quarantain, 9
„ „ Genoa, sweet, 9
„ *Paris*, 6
„ „ large, 6
„ Perpetual, 8
„ Provence, green, 7
„ „ purple, 9
„ Roscoff, 9
„ *Venice, purple*, 9
Asparagus, 13
„ Argenteuil early giant, 19
„ „ late giant, 20
„ blanching, 16
„ common green, 19
„ essential points in the production of good, 15
„ *giant Dutch*, 19
Asparagus, giant Dutch, purple, 19
„ officinalis, 11
„ planting, 16
„ white German, 19
Asperula odorata, 754
Atriplex hortensis, 477

B

Balm, 20
Barbarea præcox, 262
Basella alba, 451
„ cordifolia, 451
Basil, 21
„ bush or dwarf, 22
„ curled-leaved, 22
„ East Indian or tree, 23
„ green bush, 22
„ „ „ *compact*, 23
„ large green sweet, 22
„ „ purple sweet, 22
„ *lettuce-leaved*, 22
„ purple bush, 23
„ „ „ compact, 23
Bean, Aguadulce long-podded, 28
„ „ *extra long-podded*, 29
„ aphis, 776
„ asparagus, 80, 98
„ „ *Cuban*, 100
„ „ *giant extra early*, 99
„ „ long Tonkin, 99
„ „ stringless Lablab, 101
„ „ *very early long-pod*, 98, 99
„ Bagnolet, dwarf white, 65
„ „ green-seeded, 54
„ „ nettled-leaved, 59
„ Beck's dwarf Green Gem, 31
„ Best of All, 67
„ *Bouscat early long-pod forcing*, 53
„ broad, common or, 24
„ „ *pod skinless*, 72
„ „ *Windsor*, 30
„ Bulgarian, 80
„ *butter, black Algerian, tall*, 70
„ „ „ wax or the, 84
„ „ Cambrai tall wax or, 69
„ „ Detroit wax, 90
„ „ *dwarf Algerian black-seeded*, 84
„ „ „ *Digoin*, 83, 84
„ „ „ *extra early golden*, 83
„ „ „ extra early wax, 86
„ „ „ flesh-coloured Prédome, 89
„ „ „ *golden*, 83
„ „ „ *Mont d'Or*, 69

Bean, butter, dwarf white, 82
" " " " wax or, 82
" " Geneva or Plainpalais white or wax, 72
" " *ivory*, 79
" " " tall, 79
" " *long-podded dwarf Algerian*, 84, 85
" " *Mont d'Or*, 83
" " " " *dwarf wax or*, 69
" " New Golden, 90
" " Prolific German, 84
" " rose-coloured Prédome, 80
" " Saint Joseph, 80
" " tall white Algerian wax or, 68
" " " " wax or, 79
" " Valentine, 90
" " variegated white-podded, 89
" " *very early dwarf*, 82
" " " " " wax or, 82
" " Wardwell's, 90
" " white Crystal, 90
" " " the, 72
" *Case-knife, White Dutch Scimitar or*, 46
" climbing French varieties, 758, 759
" *Cluster or Fan, dwarf*, 31, 32
" Coco Prolific, two-coloured, 77
" common or broad, 24
" common white flat, 64
" " " round, 65
" Cornhill, red-speckled, Cut-short or, 50
" Cut-short, or Cornhill, red-speckled, 50
" dwarf Barbès, 58
" " Black Hermitage, 57
" " *blue-black seeded*, 55, 56
" " *early white*, 59, 60
" " *Emperor of Russia*, 61
" " *extra early Black Prince*, 56
" " *Fan or Cluster*, 31, 32
" " Flageolet Chevrier, 53
" " " *Triumph of Frames*, 53
" " Green Gem, Beck's, 31
" " " *seeded Soissons*, 64
" " " Vaudreuil, 66
" " *Inexhaustible*, 51
" " *long-podded Lyonnais*, 86
" " long scarlet 54
" " Marvel of Paris, 60
" " Matchless, 51
" " *Parisian*, 59, 60
" " purple-podded, 87
" " Prolific, 88
" " Rachel, 90
" " Sutton's Prolific Negro, 67
" " two-coloured China, 89
" " white Bagnolet, 65
" " " seeded Lyonnais, 86
" early light dun, 66
" " " " and early dark dun, 66
" *Egyptian, Kidney, Lablab, or*, 101
" Emperor William, 67
" Flageolet, Chevrier dwarf, 53
" " dwarf long scarlet, 54
" " Fame of Vitry, 54

Bean, Flageolet, Four to Four, 72, 73
" " long green-seeded, 52
" " " scarlet, 47, 54
" " " yellow or pale dun, 54
" " *Triumph of the Frames*, 53
" " *wax scarlet*, 55
" " *Wonder of France*, 53
" French, *Cherry, Japanese*, 79
" " climbing, 758
" " *dwarf purple-podded skinless*, 87
" " Earliest of All, 759
" " Fillbasket, 759
" " *La Val d'Isère*, 81
" " *New Zealand, or Prague*, 75
" " Tender and True, 759
" *Glory of Lyons*, 60
" green Windsor, 30
" haricot, bush, kidney, Solitary, or, 66
" " *du Bon Jardinier*, 86, 87
" improved early red Valentine, 90
" Inexhaustible, 51
" " *dwarf*, 51
" Kentucky Wonder, Seek no Further, Old Homestead, 49
" Kidney, Asparagus or Yard-long, 80
" " *black-speckled*, 59
" " *Bonnemain dwarf*, 52
" " broad-pod skinless, 71
" " bush haricot, 66
" " Chatres red, 47
" " climbing yellow, 80
" " " " or Dunes yellow, 80
" " dwarf Aix, 89
" " " *Belgian*, 57
" " " blood-speckled, 61
" " " chocolate, 57
" " " edible-podded, 82
" " " Emile, 87
" " " light dun-coloured, 62
" " " " long-pod, 50
" " " Mexican, 65
" " " Prédome, 87
" " " Princess, 89
" " " red Orleans, 63
" " " red-speckled, 61
" " " rice-white, 65
" " " Royal White, 56
" " " Russian, 62
" " " Sion House, 60
" " " Soissons, 63
" " " white long-pod, 49
" " " " Malmaison, 89
" " " " Quarantain, 85
" " " " *Unique*, 85
" " " " *yellow, extra early*, 58
" " " " " Hundredfold, 57
" " " *yellow Canadian*, 88
" " early dwarf Chalandray, 57
" " " " *extra Etampes*, 50
" " " " *Scimitar*, 64

Bean, Kidney, early dwarf white edible-podded, 85
,, ,, tall Englefontaine, 49
,, ,, *edible-podded giant white*, 70, 71
,, ,, Harlequin, 49
,, ,, Imperial, 80
,, ,, *Lablab or Egyptian*, 100, 101
,, ,, Lafayette, 80
,, ,, large white Liancourt, 47
,, ,, Neapolitan, 65
,, ,, Negro long-pod or black Canterbury, 56
,, ,, *nettle-leaved Canterbury*, 51
,, ,, New Bountiful, 67
,, ,, Old Homestead, 49
,, ,, or French, 32
,, ,, *oval yellow China or Robin's Egg*, 88, 89
,, ,, Partridge Egg, 49
,, ,, pink-marbled dwarf Prague, 88
,, ,, Prédome dwarf, 87
,, ,, Princess dwarf, 89
,, ,, Quarantain dwarf white, 85
,, ,, red Prague, 76
,, ,, *runner Gray Zebra*, 81
,, ,, ,, New Zealand, 76
,, ,, ,, Princess, 76
,, ,, ,, *purple*, 78
,, ,, ,, round white rice, 48
,, ,, Saint-Seurin, 50
,, ,, Soissons red, 49
,, ,, Solitary or bush haricot, 66
,, ,, Sophie, 76
,, ,, Spread Eagle, 62
,, ,, two-coloured Italian, 77
,, ,, *Unique dwarf white*, 85
,, ,, Val d'Isère, 81
,, ,, Villetaneuse, 81
,, ,, white Canterbury, 50
,, ,, ,, Coco, 76
,, ,, ,, Prague, 76
,, ,, ,, *Prédome*, 77
,, ,, *yellow Canadian dwarf*, 88
,, *Lablab, Egyptian, or Kidney*, 100, 101
,, large common field, 27
,, Lima, Burpee's Quarter-Century dwarf, 97
,, ,, ,, Willow-leaf, 96
,, ,, ,, Willow-leaf bush dwarf, 97
,, ,, Challenge, Dreer's Improved, or Potato, 96
,, ,, common, the, 95
,, ,, dwarf, 96
,, ,, ,, large white, Burpee's bush Lima, 97
,, ,, ,, Sieva, Henderson's bush Lima, Wood's New Prolific Lima, 97
,, ,, extra early Jersey, 96
,, ,, King of the Garden, 96
,, ,, *large, the*, 95
,, ,, mottled or marbled Cape, 96
,, ,, Siebert's early, 96
,, ,, small or Sieva, 96
Bean, Lima, yellow or pale dun Flageolet, 54
,, Lyonnais *long-podded dwarf*, 86
,, ,, white-seeded dwarf, 86
,, MacMillan's American Prolific, 66
,, Matchless dwarf, 51
,, Mazagan early, 32
,, Mohawk early, 67
,, Nankeen-yellow Geneva, 80
,, Ne Plus Ultra, 67
,, New Mammoth Negro, 67
,, Newington Wonder, 67
,, Old Homestead, Kentucky Wonder, Seek no Further, 49
,, Osborne's early forcing, 67
,, Perfection, 29
,, Plein de la Flèche, 66
,, *pole, extra early*, 48
,, ,, long scarlet Flageolet, 47
,, ,, *Soissons large*, 45
,, ,, white Sallandre improved, 47
,, Rachel, dwarf, 66, 90
,, red-speckled, Cut-short, or Cornhill, 50
,, Refugee or Thousand to One, 67
,, ,, ,, ,, ,, ,, extra early, 68
,, runner, black-seeded, 93
,, ,, edible-podded black Scimitar, 75
,, ,, Painted Lady, Bicolor, or York and Lancaster, 93
,, ,, scarlet, hybrid, 94
,, ,, ,, the, 93
,, ,, Soissons large, 45
,, ,, *white, the*, 94
,, Scimitar, edible-podded black runner, 75
,, ,, *White Dutch or Case-knife*, 46
,, Seek no Further, Old Homestead, Kentucky Wonder, 49
,, *Seville long-pod*, 28
,, *Shah, the*, 62, 63
,, Sieva, small Lima or, 96
,, Sir Joseph Paxton, 68
,, *Skinless broad-pod*, 72
,, ,, *from the Valley*, 74
,, ,, golden-yellow tall, 74
,, ,, *Saint-Fiacre*, 73
,, ,, ,, ,, white-seeded, 73
,, ,, *white tall King of the*, 68
,, *Small July*, 30, 31
,, *Soissons dwarf green-seeded*, 64
,, Southern Prolific, 49
,, *Soy*, 661
,, ,, common yellow, 661
,, ,, *Etampes yellow*, 662
,, ,, Podolian, 662
,, ,, stringless green-pod, 67
,, ,, very early brown-seeded, 662
,, Sutton's Prolific Negro, dwarf, 67
,, the Monster, 66
,, Thousand to One, Refugee, or, 67
,, ,, ,, ,, ,, ,, extra early, 68
,, two-coloured Coco Prolific, 77
,, Vaudreuil, dwarf green, 66

Bean, Ward's Centenary, 90
„ Wax or Butter, black, the, 84
„ „ „ „ Currie'sRust-proof, 67
„ „ „ „ Davis, 67
„ „ „ „ Detroit, 90
„ „ „ „ *dwarf Algerian black-seeded*, 84
„ „ „ „ *dwarf Digoin*,83, 84
„ „ „ „ „ extra early, 86
„ „ „ „ „ extra *Golden*, 83
„ „ „ „ „ *Mont d'Or*,69
„ „ „ „ „ very early, 82
„ „ „ „ *Flageolet scarlet*, 55
„ „ „ „ Geneva or Plainpalais white, 72
„ „ „ „ golden, 90
„ „ „ „ *ivory*, 79
„ „ „ „ „ tall, 79
„ „ „ „ *King of the*, 82
„ „ „ „ *long-podded dwarf Algerian*, 84, 85
„ „ „ „ New Golden, 90
„ „ „ „ Prédome flesh-coloured, 89
„ „ „ „ Prédome rose-coloured, 80
„ „ „ „ Prolific German, 84
„ „ „ „ *tall black Algerian*, 84, 85
„ „ „ „ „ Cambrai, 69
„ „ „ „ „ white, 79
„ „ „ „ „ „ Algerian, 68
„ „ „ „ Valentine, 90
„ „ „ „ variegated white-podded, 89
„ „ „ „ very early dwarf, 82
„ „ „ „ Wardwell's, 90
„ „ „ „ *white*, 72, 90
„ „ „ „ „ Crystal, 90
„ *White Dutch, Scimitar, or Case-knife*, 46
„ „ *tall King of the Skinless*, 68
„ Williams' new early, 68
„ *Windsor, broad*, 30
„ yellow Canterbury, 68
Beans, French, 44
„ Kidney, culture in pits and frames, 38
„ „ early crops in market-gardens, 41
„ „ first main sowing, 43
„ „ „ outdoor crop, 41
„ „ forcing, 39
„ „ gathering, 43
„ „ mulching and watering, 37
„ „ out of door sowing, 42
„ „ soil, 37
„ „ sowing, and culture out of doors, 35
„ „ to force, 40
„ „ *tough-podded*, 45
„ scarlet runner, 90
„ „ „ market-garden culture, 93
Beans, scarlet runner, sowing in open ground, 92
„ „ „ sticking, 92
„ *white tall King of the Skinless*, 68
Beet, Bassano, early flat, 111, 112
„ *Black Queen*, 108, 109
„ Black, Whyte's, 106, 107
„ *blood-red deep Castlenaudary*, 106
„ „ „ Dewing's early, 109
„ „ „ *large*, 104, 105
„ „ „ long smooth or long smooth Rochester, 105
„ *Castlenaudary, deep blood-red*, 106
„ Cheltenham green-top, 112, 759
„ *Chilian*, 350
„ „ or red-stalked Swiss Chard, 350
„ *Covent Garden red*, 109
„ *Dell's dark crimson dwarf*, 107, 108
„ Dewing's early blood-red, 107
„ *Dracæna-leaved*, 107, 108
„ *dwarf Dell's dark crimson*, 107, 108
„ „ *red, Nutting's*, 107
„ Egyptian, Crosby's, 112
„ „ *dark red turnip-rooted*, 112
„ Galloway Purple, 759
„ Gardanne, 105
„ garden, 104
„ Globe, the crimson, 110
„ green-top, the Cheltenham, 112
„ Henderson's Pine-Apple, Short's Pine-Apple, or Pine-Apple dwarf, 112
„ intermediate dark, Strasbourg Pear-shaped, Non Plus Ultra, 109
„ Leaf, or Swiss Chard Beet, 347
„ Lentz, 112
„ *long yellow or orange*, 113
„ non-bleeding, 759
„ Non Plus Ultra, Strasbourg Pear-shaped, intermediate dark, 109
„ *Nutting's dwarf red*, 107
„ *orange, long yellow*, 113
„ *red Covent Garden*, 108, 109
„ „ flesh varieties of, 104
„ „ *rough-skin*, 106
Rochester long smooth or blood-red long smooth, 105
„ root, 102
„ „ rough-skinned red, 105
„ „ sowing and storing, 103
„ salad, Trévise early or Turin red spring, 109
„ Sea-kale or Swiss Chard, 347, 348
„ „ silvery, or silvery Swiss Chard, 349
„ Short's Pine-Apple, Pine-Apple dwarf red, or Henderson's Pine-Apple, 112
„ *silvery Sea-kale or silvery Swiss Chard*, 349
„ *Strasbourg Pear-shaped*, 110
„ Strasbourg Pear-shaped, Non Plus Ultra, or intermediate dark, 109
„ Trévise early or Turin red spring salad, 109
„ „ *red flat*, 110
„ Turin red spring salad, Trévise early or, 109

Beet, Turnip, Detroit dark red, 111
,, ,, *Dewing's blood-red*, 110
,, ,, early blood-red, 110
,, ,, *Eclipse*, 110, 111
,, ,, *Egyptian dark red*, 112
,, ,, *yellow or orange*, 113
,, Victoria, 112
,, *Whyte's black*, 107
Benincasa cerifera, 341
Beta vulgaris, 102, 347
Borage, 113, 114
Borago officinalis, 113
Borecole, cabbage-curled winter, 151, 152
,, ,, *English Thousand-headed or branching*, 162
,, curled, dwarf purple, 160
,, ,, laciniated, 161
,, *Flanders purple or Flanders Kale*, 162
,, or Kale, 158
,, *or Palm-tree Cabbage*, 161
,, proliferous, 161
,, tall purple, 160
,, *variegated or garnishing Kale*, 160
Brassica caulo-rapa, 164
,, eruca, 637
,, napus, 730
,, nigra, 446
,, oleracea, 117
,, ,, acephala, 158
,, ,, Botrytis, 204, 217
,, ,, bullata, 144
,, ,, capitata, 123
,, sinensis, 170
,, ,, L. var., 171
Broccoli, 114
,, *Adams' early white*, 223
,, Backhouse's white winter, 225
,, Cattell's Eclipse, 226
,, Cauliflower, Grange's early or Bath white, 226
,, Champion, 226
,, Chappel's Cream, 226
,, Cooling's Matchless, 226
,, Criterion, 226
,, culture for market, 221
,, early Penzance, 225
,, *Easter*, 223
,, French, large white, 222
,, green Cape, 225
,, growing for exhibition, 220
,, heeling in, 219
,, improved white sprouting, 225
,, Knight's Protecting, 226
,, late dwarf purple or Cockscomb, 225
,, ,, green or late Danish, 225
,, Leamington, 226
,, Ledham's Latest of All, 226
,, *Mammoth, large white*, 223, 224
,, Osborn's white winter, 225
,, Protecting, 220
,, purple, 224
,, ,, *Cape*, 216, 224
,, ,, *sprouting*, 225
,, ,, ,, or Asparagus, 224
,, Roscoff white, 223
Broccoli, Saint-Laud, 222
,, Snow's Superb white winter, 226
,, soil and manure, 219
,, sowing and planting, 219
,, Sulphur, 226
,, Veitch's Protecting, 226
,, Walcheren or Walcheren Cauliflower, 214
,, white extra early, 222
,, ,, ,, *large*, 224
,, Wilcove's, 226
Brussels Sprouts, 114, 152
,, ,, culture, 154
,, ,, *dwarf*, 156
,, ,, ,, *half*, 156
,, ,, ,, Paris market, 155
,, ,, gathering, 154
,, ,, soil, 154
Buckshorn Plantain, Hartshorn or Star of the Earth, 115
Bunias orientalis, 638
Burdock or Gobo, edible, 115, 116
Burnet, garden, 117
,, salad, 116

C

Cabbage, 117
,, All-head, Faultless early or Eclipse, 142
,, All-seasons or Vandergaw, 142
,, Alsace autumn, 140
,, Amager extra large, 137
,, Atkins' Matchless, 141
,, Autumn King or World Beater, 143
,, *Bacalan, early*, 128
,, ,, *large*, 129
,, Barnes' early dwarf, or Prince's Nonpareil, 126
,, *Borecole, curled winter*, 151, 152
,, *Braganza or Portugal, Sea-kale*, 151
,, *Brunswick, short-stemmed*, 132
,, *Chinese*, 170
,, ,, heading, 171
,, ,, ,, *improved*, 171
,, clubbing, 776
,, common, the, 123
,, Cornish Paignton, or early Cornish, 141
,, *curled Couve Tronchuda*, 151
,, cutting, 120, 760
,, *dark red early, point-headed*, 138
,, Death's-head, 140
,, Deep-head, 142
,, Drumhead Bridgeport, 143
,, ,, Christmas, 763
,, ,, *Dax*, 133, 134
,, ,, *early Dutch*, 132
,, ,, ,, ,, or early dwarf flat Dutch, 132
,, ,, *large red, or large red Dutch pickling*, 137, 138
,, ,, *late flat Dutch*, 134

Cabbage, Drumhead, Louisville, 143
" " *marbled Burgundy*, 139
" " *Mason's or Hundred-weight, Quintal*, 134
" " Premium late, or large late Drum-head, 143
" " *Savoy, large hardy winter*, 149
" " " *large Vertus*, 148, 149
" " *Schweinfurt Quintal*, 132
" " smooth-leaved, 130
" " *St. Denis*, 130, 131
" " *St. John's Day, dwarf*, 129
" Dutch Acme, late flat, 143
" " " Premium late flat, 143
" " " select, 143
" " Excelsior late flat, 142
" " *large red, or large red Drumhead pickling*, 137, 138
" early April, 762
" " *Bacalan*, 128
" " *dark red Erfurt*, 137
" " Ellam's, 762
" " Enfield Market, 761
" " Etampes, 125
" " *extra, Express*, 125
" " *Habas*, 133
" " Offenham, 763
" " *Paris Market*, 126
" " Rainham, 763
" " *Tourlaville*, 127
" " York, 123
" *English Thousand-headed or branching Borecole*, 162
" *Erfurt, early dark red*, 137
" " " small, 129, 130
" Etampes, early, 125
" Excelsior, late flat Dutch, 142
" *Express, extra early*, 125
" *Filder, or Pomeranian*, 135
" Flower of Spring, 763
" *Fumel*, 133
" Gratscheff, giant flat, 141
" *green glazed American*, 136
" *Habas early*, 133
" Harbinger, 762
" hardy green colewort, 763
" " winter colewort, 760
" *improved Nonpareil*, 763
" " *or French Thousand-headed*, 162, 163
" *Jersey Wakefield*, 125
" Kaper-Kohl, 141
" large La Trappe or Mortagne, 140
" *late St. John's Day*, 131
" *Lingreville*, 128
" Little Pixie or Tom Thumb, 141
" London Rosette colewort, 760, 763
" Lubeck, 141
Cabbage, Luxembourg or Hard-heading, 143
" Main-crop, 763
" Marble-head Mammoth, 143
" Mortagne, La Trappe or, 140
" Murcian, 142
" *Oxheart early*, 124
" " *large*, 127
" *Palm-tree, or Borecole*, 161
" *Paris Market, early*, 126
" *Parisian early flat spring*, 129
" " *flat*, 129
" Pe-Tsai, 171
" *pickling, large red Dutch or large red Drumhead*, 137, 138
" Pisa round, 141
" *Polish red short-stem*, 138
" *Pomeranian, Filder or*, 135
" *Portugal, Braganza or Seakale*, 151
" Prince's Nonpareil, 126
" " " or Barnes's early dwarf, 126
" Quintal Auvergne, 135
" Red, when to sow, 762
" *red Utrecht*, 137
" Sarthe cow or large-leaved Jersey Kale, 162
" Savoy, Aire, 146
" " " *extra fine curled*, 147
" " *Cape or large late green*, 147
" " dwarf early green curled, 145
" " " Robert, 145, 146
" " *early flat green curled*, 146
" " *large Aubervilliers*, 148
" " *Limay*, 149
" " *long-headed*, 148
" " *Norwegian*, 150
" " *Paris, very early*, 145
" " *small Belleville*, 150
" " *St. John's*, 144
" " *Tours*, 146
" " *Ulm or early green curled*, 144
" " *Victoria*, 147
" " *yellow curled or golden*, 147
" *Seakale, Braganza or Portugal*, 151
" sowing and planting, 119, 759
" *spring early flat Parisian*, 129
" *St. John's Day, late*, 131
" Stonemason or Warren's Stone-mason, 143
" Succession, 142
" *Sugar Loaf*, 124
" summer, early Henderson's, 130, 142
" Surehead, 143
" Tom Thumb, Little Pixie or, 141
" *Tourlaville, early*, 127
" Tree or Jersey Kale, 161
" turnip-rooted, Swedish turnip, 166
" *variegated heading*, 139

Cabbage, Vaugirard, 136, 137
,, Wheeler's Imperial, 763
,, *Winnigstadt, early*, 135, 763
,, *winter curled-head*, 136
,, York, early dwarf, 123
,, ,, *large*, 123
Cabbages, Savoy, 144
Calendula officinalis, 402
Campanula Rapunculus, 631
Caper Bush, 172
Capsicum annuum, 173
,, *Celestial*, 183
,, common, 175
,, early dwarf red Spanish, 183
,, Elephant's Trunk, 182
,, Golden Dawn, 180
,, ,, Upright, 184
,, insects, etc., 174
,, Kaleidoscope, 183
,, *large Bell pepper*, 179
,, long red or Guinea pepper, 175
,, ,, yellow, 176
,, *Mammoth Golden Queen*, 181
,, *Monstrous*, 181
,, Procopp's Giant, 183
,, red pepper, 173
,, ,, Tomato or American Bonnet pepper, 182
,, Ruby King, 180
,, Spanish Monarch, 182
,, spinosa, 172
,, violet-coloured or black, 283
Caraway, 184
Cardamine pratensis, 263
Cardoon, 185
,, *artichoke-leaved*, 188, 189
,, *ivory-white*, 187, 188
,, long Spanish, 188
,, *prickly Tours*, 187
,, *smooth solid*, 188, 189
,, tying and earthing up, 186
Carrot, 189
,, *Altringham*, 200
,, Bardowick, 204
,, *coreless long red*, 199
,, *Dutch Horn*, 193
,, Dutch Horn, early scarlet, 193
,, *early Carentan*, 196
,, ,, *Nantes*, 195
,, *English Horn or early half long scarlet*, 194
,, *Flanders or Sandwich*, 201
,, French Horn or earliest short-horn, 193
,, *half-long blunt scarlet*, 195
,, ,, *Chantenay*, 197
,, ,, *Danvers orange*, 197, 198
,, ,, *Luc*, 197
,, ,, *scarlet early Nantes*, 196
,, *James' intermediate*, 195
,, *long blood-red*, 201
,, ,, lemon, 202
,, ,, ,, short, 203
,, ,, orange, 204
,, ,, *Surrey or long red*, 199
,, ,, *yellow stump-rooted*, 203
,, *orange Belgian or long orange green-top*, 202
Carrot, Oxheart blunt-rooted Guerande, 194
,, *Parisian forcing*, 193
,, *red long smooth Meaux*, 199, 200
,, *Valery*, 198
,, *yellow Intermediate or long yellow stump-rooted*, 203
Carrots, autumn sowing, 191
,, diseases and insects, 191
,, early and main crops, 191
,, forcing, 190
,, storing, 191
,, wild, improving, 203
Carum Carvi, 184
Cat Mint, 438
Cauliflower, 204
,, *Algiers, large*, 213
,, *Alleaume's dwarf*, 211
,, culture in market gardens, 208
,, *Dutch early or early London*, 214
,, Erfurt early dwarf, 210
,, French, large white, 213
,, Grange's early or Bath white, 226
,, *Imperial*, 211
,, Incomparable, 215
,, Italian Giant, self-protecting, 215
,, late Asiatic, 214
,, *Lenormand's short-stalked*, 212
,, Paris forcing earliest, 211
,, ,, large, 213
,, ,, *or Nonpareil, half-early or*, 212
,, planting under handlights, 207
,, Russian, the, 216
,, Snowball, early, 210
,, *Stadtholder*, 214
,, *Veitch's Autumn Giant*, 215
,, Walcheren or Walcheren broccoli, 214
,, watering and mulching, 208
Celeriac, apple-shaped, 240
,, Erfurt early, 239
,, large early August or variegated-leaved, 239
,, ,, *smooth Prague*, 240
,, Prague, 240
,, smooth Paris, 239
,, Turnip-rooted Celery or, 238
Celery, blanching, 228
,, Boston Market, 237
,, common, 231
,, Crawford's half-dwarf, 237
,, endive, 235
,, Evans' Triumph, 237
,, fern-leaved, 235
,, for very early, 227
,, golden heart or golden dwarf, 237
,, Hartshorn, the, 235
,, keeping, 230
,, Leaf blight, 776
,, Leaf miner, 777
,, maggot, 777
,, Mammoth, white, 236

Celery, market-garden culture, 229
„ New Rose, 237
„ Paris, golden, 233
„ „ *rose-ribbed*, 233
„ Pascal, 233
„ „ *white solid*, 234
„ Perfection Heartwell, 237
„ Pink Plume, 238
„ red large-ribbed, 236
„ solid Arezzo, white, 233
„ „ *curled white*, 234, 235
„ „ dwarf white, 234
„ „ „ „ *large-ribbed*, 234
„ „ golden-yellow, large, 232
„ „ *red giant*, 236
„ „ „ „ London Market red or Ivery's Nonsuch, 236
„ „ *white*, 232
„ „ „ dwarf Sandringham or Incomparable, 235
„ *soup*, 238
„ trenches for, 228
„ *turnip-rooted*, 239
„ „ or Celeriac, 238, 239
„ *White Plume*, 234, 235
„ Winter Queen, 238
Chærophyllum bulbosum, 242
Chenopodium Bonus Henricus, 313
Chervil, 240
„ *common or plain*, 241
„ *curled*, 241
„ *turnip-rooted*, 242
Chestnut, water, 753, 754
„ „ *fruit*, 754
Chick Pea, 243
„ „ white, 244
Chickling Vetch, 243
Chicory and Succory, 245
„ *broad-leaved*, 248
„ *Brunswick*, 246
„ curled-leaved, 249
„ improved variegated, 248
„ large Brussels or Witloof, 247
„ „ rooted, 246
„ *Magdeburgh*, 247
„ or Succory, 244
„ red Italian, 246
„ „ leaved Lombardy, 246
Chillies or Chili Pepper, 177
Chives, 249
Chufa or Rush Nut, 640
Cicer arietinum, 243
Cichorium Endivia, 295
„ Intybus, 244
Citrullus vulgaris, 432
Cladosporium fulvum, 780
Clary, 250
Claytonia perfoliata, 605
Cochlearia Armoracia, 342
„ officinalis, 646
Colewort, Green Rosette, 156
„ hardy green, 763
„ London Rosette, 763
Collard's Georgia, 160
Convolvulus Batatas, 601
Corchorus olitorius, 402
Coriander, 250, 251
Coriandrum sativum, 250
Corn Salad, 251
„ „ *cabbaging*, 254
„ „ common or Lamb's Lettuce, 251
„ „ *Etampes*, 254
„ „ golden, 253
„ „ *Italian*, 255
„ „ „ *lettuce-leaved*, 255
„ „ large-seeded, 253
„ „ *round-leaved*, 253
„ „ *spoon-leaved*, 256
Crambe maritima, 647
Cress, American or Belle Isle, 262
„ *Brazil*, 263, 264
„ *broad-leaved*, 258
„ common, 258
„ *curled*, 258
„ garden broad-leaved, 258
„ „ common, 257
„ „ curled or Normandy, 258
„ „ *extra curled dwarf*, 258
„ „ golden or Australian, 259
„ meadow, 263
„ or garden, 256
„ Pará, 263
„ *water*, 259
„ „ *improved broad-leaved*, 261, 262
Crithmum maritimum, 643
Crocus sativus, 640
Crops, Rotation of, 773
Cucumber, 264
„ Blue Gown, 280
„ *Bonneuil, large white*, 276
„ *brown-netted or Khiva*, 274
„ Cardiff Castle, 280
„ *Chinese green long*, 281, 282
„ Duke of Bedford, 280
„ *Dutch early yellow*, 276
„ early white, 275
„ extra long white spine, 281
„ Fournier, 277
„ „ long green, 277
„ Globe, 285
„ Goliath, green, 281
„ *Greek or Athenian*, 281
„ *green giant ridge*, 277, 278
„ „ Parisian long ridge, 278
„ half-long green, 276
„ Hamilton's Market Favourite, 280
„ *improved Bourbonne*, 283
„ *long English prickly*, 279
„ „ green, 277
„ „ *Turkish*, 274, 275
„ Marquis of Lorne, 280
„ pickling, early Cluster, 283
„ „ „ frame, or early short, 282
„ „ „ white spine, 284
„ „ *green Meaux*, 283
„ „ *or Gherkin*, 282
„ *Rollisson's Telegraph*, 279
„ *Snake*, 284
„ Stourbridge long green, 278
„ Tender and True, 280
„ Tuscan solid green, 281
„ *white Parisian long ridge*, 275

Cucumber, white spine Arlington or improved, 282
,, ,, ,, extra long, 282
Cucumbers in market gardens, 270
,, ,, pits and frames, 267
,, ,, the open air, 272
,, on hot beds, 268
,, ridge, 280
,, soil and manure for, 270
,, summer and autumn, 268
,, winter and spring, 265
Cucumis Anguria, 285
,, Melo, 284, 404
,, ,, var. flexuosa, 284
,, prophetarum, 285
Cucurbita, 314
,, Lagenaria, 338
,, maxima and varieties, 315
,, moschata and varieties, 326
,, Pepo and varieties, 328
Cumin or Cummin, 286
Cuminum Cyminum, 286
Curlies, dwarf, German Greens, Canada or Labrador dwarf green Kale, 159
Custard Marrow, 333
,, ,, green, 334
,, ,, *improved variegated*, 335
,, ,, *or Elector's Cap*, 334
,, ,, orange-coloured, 335
,, ,, striped, 335
,, ,, *white bushed scalloped*, 334
,, ,, *yellow*, 334
Cynara Cardunculus, 185
,, Scolymus, 3
Cyperus rotundus, 640

D

Dandelion, 286
,, *improved giant erect*, 288
,, ,, *very early*, 287, 288
,, large green Montmagny, 288
,, *moss-leaved*, 288, 289
,, *thick-leaved or cabbaging*, 287
Daucus Carota, 189
Dill, 289
Dioscorea Batatas, 755
Dolichos, 97
,, black-eyed, 97
,, sesquipedalis, 98
,, unguiculatus, 97

E

Egg-plant, 289
,, ,, Antilles giant, 294
,, ,, *Black Pekin*, 293
,, ,, Catalonian, 294
,, ,, *Chinese Brinjal or white China*, 294
,, ,, *Madras*, 293
,, ,, Murcian, 294
,, ,, *purple Barbentane very early long*, 291
,, ,, ,, *early dwarf*, 291
,, ,, ,, *long*, 290
,, ,, ,, ,, early, 290
Egg-plant, purple New York, 292
,, ,, ,, *round*, 292
,, ,, Thibet, 294
,, ,, *white*, 294
Endive, 295
,, *Batavian broad-leaved*, 305
,, ,, *hardy green winter*, 307
,, ,, *hooded or hardy green winter*, 306
,, ,, ,, *Bordeaux, the*, 307
,, ,, *white, the*, 306, 307
,, blanching and protecting, 296
,, culture in Britain, 296
,, *curled Christmas*, 304
,, ,, *ever-white*, 303, 304
,, ,, *green Paris*, 298
,, ,, ,, *Ruffec*, 302
,, ,, ,, *Upright*, 300
,, ,, *Imperial*, 302
,, ,, *moss*, 303
,, ,, *white*, 303
,, intermediate Bordeaux, 304
,, *Limay, broad-leaved*, 306
,, *Louviers*, 301
,, *Picpus curled*, 299
,, *Rouen or Stag's-horn*, 300, 301
,, *summer golden-heart curled*, 299
,, ,, *green curled*, 298, 299
,, *winter green fine-curled*, 299
Eruca sativa, 637
Ervum Lens, 359
Erysimum præcox, 262
Evening Primrose, 307, 308

F

Faba vulgaris, 24
Fedia Cornucopiæ, 753
Fennel, 308
,, common garden or long sweet, 308
,, ,, wild or bitter, 308
,, *Finnochio or Florence*, 309
,, *flower*, 310
Fœniculum officinale, 308
,, vulgare, 308
Fragaria, 671
,, alpina, 673
,, chilensis, 678
,, collina, 678
,, elatior, 677
,, grandiflora, 678
,, vesca, 672
,, virginiana, 678

G

Garden Cress, broad-leaved, 258
,, ,, common, 257
,, ,, curled or Normandy, 258
,, ,, *extra curled dwarf*, 258
,, ,, golden or Australian, 259
,, ,, or Cress, 256
Garlic, common, 310, 311
,, early pink, 312
,, great-headed, 312
,, red, 312
Gherkin, Boston pickling or green Prolific, 284

Gherkin, Chinese, the, 284
„ *early Russian*, 273
„ green Meaux, 283
„ *or pickling Cucumber*, 282
„ prickly or West Indian, 285
„ Toulouse, 284
„ *West Indian*, 285
Gherkins, 273
Gobo or edible Burdock, 115, 116
Gombo, Okra or, 453
Goosefoot, early, or white Quinoa, 313
Gourd, bottle, common, 340
„ „ *miniature*, 340, 341
„ *Brazilian sugar*, 330
„ *carpet bag or Maple squash*, 326
„ „ „ *early, or early Neapolitan squash*, 327
„ *club*, 339
„ early apple, 337
„ egg, 338
„ *fancy warty*, 338
„ „ *white-striped*, 337, 338
„ *flat Corsican*, 340, 341
„ *Mammoth Whale*, 323, 324
„ *miniature*, 337
„ orange, 337
„ *pear*, 336
„ „ *ringed*, 336
„ *powder-horn*, 340, 341
„ *siphon*, 339
„ *small Chinese turban*, 324, 326
„ *Spanish pumpkin or*, 318
„ *Turk's Cap or turban*, 324, 325
„ wax, 341
„ *winter Canada or crook-necked*, 328
„ *Yokohama*, 327
Gourds, 314
„ bottle, 338
„ fancy, 335
Grass, scurvy, 646
Greens, German dwarf Curlies, Canada or Labrador dwarf green curled Kale, 159
„ „ tall or winter, 158

H

Hartshorn, Star of the Earth, or Buckshorn Plantain, 115
Helianthus tuberosus, 10, 758
Hibiscus esculentus, 453
Hop, 341
Horehound, 342
Horse-radish, 342, 343
Hyssop, 344
Hyssopus officinalis, 344

I

Ice-plant, 345
Indian Corn, Maize or, 400
„ *Cress, Nasturtium or*, 448

J

Jews' Mallow, 402

K

Kale, asparagus or Jerusalem green curled, 159
Kale, Cottagers', 164
„ *curled green dwarf, German Greens, dwarf Curlies, Canada or Labrador Kale*, 159
„ Egyptian, 164
„ *Flanders, or purple Flanders Borecole*, 162
„ *garnishing, variegated Borecole or*, 160
„ *intermediate moss-curled*, 159
„ Jersey kale, or tree cabbage, 161
„ „ large-leaved or Sarthe cow cabbage, 162
„ „ *tree or*, 162
„ Jerusalem green curled or asparagus, 159
„ „ or Delaware, 164
„ marrow, 163
„ „ *red*, 163
„ Milan, 164
„ *Mosbach winter*, 158
„ or Borecole, 158
„ Ragged Jack, 164
„ Russian, 157
„ *Scotch or late green curled*, 158
„ tall purple or purple winter Greens, 160
Kohl-Rabi, 164
„ artichoke-leaved, 166
„ *common white*, 165
„ Neapolitan, the, 166
„ purple, 165
„ Vienna early purple, 166
„ „ *white*, 166
„ white Goliath, 165

L

Lablab vulgaris, 100
Lactuca angustana, 398
„ capitata, 362
„ perennis, 399
„ sativa, 360
Lagenaria vulgaris, 338
Lappa edulis, 115
Lathyrus sativus, 243
Lavandula spica, 346
„ vera, 346
Lavender, common, 346
„ *true*, 346
Lavenders, 345
Leaf Beet or Swiss Chard Beet, 347
„ „ *white*, 348
„ „ „ or Spanish Beet, 348
Leek, 350
„ Brabant short broad, 357
„ *broad or London flag*, 355
„ Bulgarian, 354
„ Carentan, giant, 357
„ Lion, the, 358
„ *Mezières, long*, 353, 354
„ Musselburgh or Scotch flag, 358
„ *Perpetual*, 357, 358
„ *Poitou, large yellow*, 355, 356
„ Rouen, large, 356
„ small mountain, 358
„ winter Flanders, 357
„ „ *long Paris*, 353
Lens esculenta, 359

Lentil, Auvergne, or One-flowered Tare, 360
,, large yellow, 359
,, Puy green, 360
,, small March, 360
,, ,, winter, 360
Lentils, 359
Leontodon Taraxacum, 286
Lepidium sativum, 256
Levisticum officinale, 399
Lettuce, 360
,, *Algiers*, 371
,, *American curled*, 397
,, asparagus, 398
,, *Beauregard, laciniated*, 397
,, Bigotte, 369
,, blond Stonehead or Blockhead, 381
,, Boston Market, 387
,, *brown Stonehead or Blockhead*, 378
,, butter, black-seeded, 386
,, ,, Californian cream, 386
,, ,, Philadelphia, 386
,, ,, St. Louis, 386
,, cabbage, 362
,, ,, Bellegarde, 383
,, ,, *black-seeded All-the-Year-Round*, 372
,, ,, ,, *crisped*, 367
,, ,, *Blond Blockhead*, 382
,, ,, brown, 383
,, ,, ,, *Batavian or Marseilles*, 380, 381
,, ,, ,, *Genoa*, 377
,, ,, Coquille, 369
,, ,, *curled German Batavian or curled Silesian*, 380
,, ,, Dutch, 384
,, ,, ,, butter-head early or, 370
,, ,, ,, *black-seeded*, 384
,, ,, ,, black-seeded brown, 384
,, ,, ,, white-seeded brown, 376
,, ,, *early Simpson*, 379
,, ,, ,, white spring or Paris Market forcing, 368
,, ,, George, early white spring, 370
,, ,, *giant summer*, 377
,, ,, *golden-headed*, 372
,, ,, green crisped, 370
,, ,, ,, *fat*, 374, 375
,, ,, ,, Tennis Ball, 370
,, ,, *Hammersmith*, 363
,, ,, Hammersmith, or hardy green winter, 363
,, ,, *Imperial or Asiatic*, 374
,, ,, *improved spotted*, 378, 379
,, ,, *large Bossin*, 381, 382
,, ,, ,, *Versailles*, 373
,, ,, *Marvel of Cazard*, 372
,, ,, ,, *or red Besson*, 378
Lettuce, Cabbage, Milly forcing, 366
,, ,, *Mogul*, 376
,, ,, ,, or black-seeded giant summer, 387
,, ,, Mortatella, 384
,, ,, *Mousseronne*, 370
,, ,, *Neapolitan*, 381
,, ,, New Gem, 385
,, ,, Pas de Calais, 385
,, ,, Premium, 386
,, ,, red, 385
,, ,, ,, *edged Trocadero or Big Boston*, 375
,, ,, ,, *edged Victoria*, 369
,, ,, Roquette, 365
,, ,, spotted, 385, 386
,, ,, spring varieties, 366
,, ,, Turkish or butter, Russian or Asiatic, 374
,, ,, *Unrivalled*, 376
,, ,, ,, or improved Big Boston, 375
,, ,, white-seeded crisp or early Paris cutting, 367
,, ,, *white-seeded Tennis Ball or Boston Market*, 367
,, ,, white Stone, 386
,, ,, ,, ,, *or Nonpareil*, 373, 374
,, ,, *winter brown*, 364, 365
,, ,, ,, *hardy red*, 365
,, ,, ,, *large white*, 364
,, ,, ,, Madeira large, 362
,, ,, ,, *Trémont*, 364
,, ,, ,, varieties, 362
,, *California curled*, 397
,, Cendrette du Havre, 384
,, Chartier, 386
,, *Chavigny white*, 373
,, Cocasse à Graine Noire, 369
,, *Cos Balloon*, 392
,, ,, *black-seeded Bath*, 394
,, ,, ,, Florence or Magnum Bonum, 392
,, ,, brown or Bath, 393
,, ,, dwarf white-heart, 396
,, ,, *early white self-folding Trianon*, 390
,, ,, *gray Paris*, 390
,, ,, green Limagne, 389
,, ,, ,, *Paris*, 389
,, ,, ,, ,, or Buckland, 389
,, ,, *ground*, 391
,, ,, improved spotted, 394
,, ,, large white Du Chesnay, 391
,, ,, Magdalena, 396
,, ,, Monstrous brown, 393
,, ,, Romaine Blonde de Niort, 395
,, ,, ,, Chicon Jaune Supérieure, 396
,, ,, ,, de Chalabre, 395
,, ,, ,, du Mexique, 396
,, ,, ,, Epinerolle, 395

Lettuce, Cos, Romaine Frisée Bayonnaise, 396
,, ,, ,, Parisienne, 396
,, ,, *spotted or Aleppo*, 394
,, ,, spring and summer, 389
,, ,, *sprouting*, 395
,, ,, summer varieties of, 391
,, ,, *white long-standing*, 392
,, ,, ,, *Paris*, 390
,, ,, ,, *seeded Bath*, 393
,, ,, ,, ,, *Florence or Magnum Bonum*, 391
,, ,, ,, *wintergreen*, 388
,, ,, ,, *red*, 388, 389
,, ,, ,, *Royal green*, 388
,, ,, ,, varieties of, 388
,, *curled German Batavian*, 380
,, *cutting black-seeded*, 396, 397
,, ,, endive-leaved, 398
,, ,, oak-leaved, 398
,, ,, white, 396
,, Dauphine, 370
,, De Néris, 385
,, ,, Zelande, 386
,, Deacon or San Francisco Market, 386
,, Detroit Market Gardeners', 387
,, Drumhead, 387
,, ,, *Malta or Ice*, 382, 383
,, *earliest dwarf green*, 371
,, early curled Silesia, 387
,, ,, *Ohio or Nonpareil*, 379
,, Empereur à Forcer, 371
,, Eureka, 387
,, Fontenay, 384
,, Fox Sterling, 386
,, Frankfort, 384
,, *French Tom Thumb*, 368
,, Gardener's Favourite, 387
,, *George*, 370
,, golden curled, 387
,, ,, Queen, 386
,, Grasse de Bourges, 370
,, green Madrid, 382
,, Hamilton Market, 387
,, Hanson, 387
,, Hubbard's forcing, 371
,, ,, market, 386
,, India head, 386
,, Lamb's or common Corn Salad, 251
,, large brown and hard-head, 386
,, ,, India, 387
,, ,, loaf, 386
,, ,, yellow-Surehead, 386
,, *Lebœuf*, 383
,, Marble-head Mammoth, 386
,, Maximum, 386
,, Moonshine, 387
,, Morse, the, 387
,, *Mortella*, 385
,, Myers' "All-right," 386
,, new Egyptian sprouting, 398
,, ,, large-head, 387
,, Nonpareil, 387
,, Normandy, large, 375
,, perennial, 399
,, perpetual, 387
Lettuce, Rose ou Rouge d'Eté, 385
,, Russian, 386
,, Salamander, 387
,, Silver Ball, 386
,, Sugar-loaf, 387
,, Tannhäuser, 386
,, Tennis Ball, black-seeded, 387
,, Titlon's White Star, 387
,, Tomhannock, 387
,, *Wheeler's Tom Thumb*, 369
,, white Batavian or Silesian, 380
,, ,, Madeira, 363
,, ,, *seeded All-the-Year-Round*, 371, 372
,, ,, *Silesian*, 380
,, winter hardy green, 387
,, Wonderful, 387
Lettuces, Cos, 387
,, small or cutting, 396
,, spring, 362
,, summer, 362, 371
,, winter, 361
,, yellow-seeded butter or Market Gardeners' private stock, 386
Ligusticum Levisticum, 399
Lotus Tetragonolobus, 549
Lovage or Lovache, 399
Love-Apple, Tomato or, 707
Lycopersicum esculentum, 707

M

Maize, Concord, 401
,, early Crosby, 401
,, ,, Minnesota, 401
,, extra early dwarf, 401
,, large early eight-rowed, 401
,, *or Indian Corn*, 400
,, Stowell's evergreen late, 401
Mallow, curled or curled-leaved, 401
,, Jews', 402
Malva crispa, 401
Mangel Wurzel, 600
Marigold, pot, 402
Marjoram, pot or perennial, 403
,, *sweet or annual*, 404
Marrow, bush, long white, 331
,, custard, 333
,, ,, green, 334
,, ,, *improved variegated*, 335
,, ,, *or Elector's Cap*, 334
,, ,, orange-coloured, 335
,, ,, striped, 335
,, ,, *white bush, scalloped*, 334
,, ,, yellow, 334
,, *Prolific early*, 321
,, squash Boston, 321
,, ,, *Ohio or Californian*, 322
,, *vegetable*, 329
,, ,, *Italian*, 331, 332
,, ,, long yellow, 330
,, *warted*, 320
Marrubium vulgare, 342
Martynia, 752
Meadow Cress, 263
Melissa officinalis, 20
Melon, 405
,, *Antibes, green-flesh*, 418

Melon, Bailey's green-fleshed, 422
,, Baltimore or Acme, 422
,, Beechwood, 422
,, Blanc à Chair Verte, 418
,, ,, de Russie, 418
,, Blenheim Orange, 421
,, *bomb-shaped*, 425, 426
,, Boulet de Canon, 418
,, *Cantaloup, Algerian*, 428, 429
,, ,, *apple-shaped*, 424
,, ,, Archangel, 430
,, ,, *Bellegarde*, 423
,, ,, Black Dutch, 430
,, ,, ,, *Portugal or Rock*, 429
,, ,, *early Black Rock or Des Carmes*, 425
,, ,, ,, English, 430
,, ,, Epinal, 430
,, ,, green-fleshed, 429
,, ,, large rock, 426, 427
,, ,, Mogul, 430
,, ,, or Rock, 423
,, ,, *orange*, 430
,, ,, *Parisian*, 427, 428
,, ,, *Passy*, 430, 431
,, ,, Prescott à Ecorce Mince, 431
,, ,, ,, Cul de Singe, 431
,, ,, ,, silvery, 427
,, ,, sugar, 426
,, ,, *Vaucluse*, 424
,, ,, *Vauriac*, 428
,, Cavaillon green-fleshed or Malta summer, 416
,, ,, *red-fleshed*, 415
,, ,, ,, ribbed, 416
,, Christiana, 421
,, Colston Bassett seedling, 422
,, Composite, 419
,, Crawley Paragon, 421
,, Cyprus, 418
,, Davenham early, 422
,, de Cassaba or de la Casba, 418
,, ,, Coulommiers, 419
,, d'Esclavonie, 419
,, de Langeais, 419
,, early crop, 407
,, Eastnor Castle, 422
,, Emerald Gem, 421
,, *golden Perfection*, 412, 413
,, ,, Queen, 423
,, *green climbing*, 412
,, ,, fleshed Egyptian, 422
,, ,, ,, Gilbert's, 422
,, Hackensack, 423
,, ,, extra early, 423
,, Hero of Bath, 421
,, ,, ,, Lockinge, 422
,, High Cross hybrid, 423
,, Hornfleur, 414
,, ,, *very long netted*, 415
,, hybrid Vallerand, 415
,, Japanese early green, 420
,, Longleat Perfection, 422
,, Montreal Market, 423
,, *Moscatelle*, 419
Melon, Munro's Little Heath, 421
,, Musk Bay View, 422
,, ,, Surprise, 421
,, Netted Gem or Rock Ford, 423
,, *Netted Siam*, 420
,, ,, Skillman's, 423
,, *Nutmeg*, 414
,, Osage or Miller's Cream, 421
,, *Paris Market Garden*, 413
,, ,, ,, ,, round netted, 413
,, Paul Rose or Petoskey, 421
,, *Persian or Odessa*, 419
,, Pine-Apple green-fleshed or Jersey green citron, 411
,, ,, *red-fleshed*, 411
,, Pomegranate, 431
,, *Prescott early frame*, 425
,, Queen Emma, 422
,, Quito, 420
,, red-fleshed, 421
,, ,, scarlet flesh, 421
,, Scarlet Gem, 421
,, *St. Louis Market Garden*, 414
,, *sugar, green-fleshed*, 420
,, ,, *Tours netted*, 413
,, *sweet-scented or Queen Anne's Pocket*, 431
,, Victory of Bath, Gilbert's improved, 423
,, ,, ,, Bristol, 421
,, water, 432
,, ,, *black-seeded*, 434
,, ,, ,, *Spanish*, 435
,, ,, citron, 435
,, ,, Cuban Queen, 435
,, ,, dark icing, 436
,, ,, *early Rodosto*, 433
,, ,, ,, ,, very early, 433
,, ,, ,, *Russian*, 433
,, ,, Excelsior, 435
,, ,, Florida Favourite, 435
,, ,, Gipsy, 435
,, ,, Ice Cream or Peerless, 463
,, ,, icing, Ice-rind, or strawberry, 436
,, ,, Mountain or Mountain Sweet, 436
,, ,, Mountain Sprout, 436
,, ,, orange, 436
,, ,, Rattlesnake, 436
,, ,, *red-seeded*, 435
,, ,, ,, ,, or red-fleshed, 434
,, ,, round light icing, Ice-rind strawberry, 436
,, ,, *Seikon*, 434
,, ,, ,, very early, 434
,, ,, Sweetheart, 436
,, William Tillery, 423
,, Windsor Prize, 421
,, *winter green-fleshed*, 417
,, ,, Olive, 471
,, ,, *red-fleshed Malta*, 416, 417
Melons, American varieties, of, 435
,, bottom heat for, 410
,, Cantaloup varieties of, 430

Melons, English and American varieties, 420
,, forcing, 406
,, general crop, 407
,, green-flesh varieties, 422
,, netted varieties, 411, 418
,, open-air culture, 410
,, soil for, 410
,, white-fleshed varieties, 422
Mentha Pulegium, 437
,, viridis, 436
Mesembrianthemum crystallinum, 345
Mint, Cat, 438
,, Cluster cup fungus, 777
,, Japanese, 437
,, or Spearmint, 436
Mugwort, 438
Mushroom-bed in the open air, protected with straw, 444
,, ,, *movable two-sided*, 443
,, *spawn in clumps*, 443
,, *tablet*, 439
Mushrooms, 438, 440
,, *beds placed against a wall, some movable*, 441
,, *grown in a tub*, 442
Mustard, black, brown, or grocer's, 446
,, *Chinese cabbage-leaved*, 446, 447
,, ,, *curled*, 448
,, ,, *tuberous-rooted*, 447
,, white or salad, 446

N

Nasturtium, dwarf, 449
,, *or Indian Cress*, 448
,, officinale, 259
,, tuberous-rooted, 449
Nepeta cataria, 438
Nigella sativa, 310
Nightshade, black-berried, 450
,, *Malabar*, 451
Nut, Pea, 550
,, ,, Earth Nut or Ground Nut, 549
,, *Rush or Chufa*, 640

O

Ocimum Basilicum, 21
Œnothera biennis, 307
Oka-plant, 452
,, ,, *tubers of*, 452
Okra, dwarf Prolific, 454
,, early Sultani, 454
,, *long-fruited green*, 453, 454
,, or Gombo, 453
,, round-fruited, 454
,, white velvet, 454
Onion, 454
,, Ailsa Craig, 763
,, *Barletta, small white extra early*, 458
,, Bedfordshire Champion, 472
,, *blood-red or St. Thomas'*, 647
,, *bright red August*, 467
,, *brown Portugal*, 462
,, Brun de Sainte-Laurent, 472
,, Cabosse, 472
,, Cantello's Prize, 472
,, *Catawissa*, 470, 471
Onion, Chamois glatte Wiener Zwiebel, 472
,, *common pale red*, 465
,, *Como flat yellow*, 472
,, Cranston's Premier, 763
,, ,, Excelsior, 763
,, d'Aigre, 471
,, *Danvers yellow*, 463
,, De Gênes, 474
,, ,, Puyregner or Rouge d'Angers, 474
,, ,, Teneriffe, 474
,, ,, Vaugiraud, 475
,, ,, Villefranche, 475
,, *Deptford or Essex*, 473
,, Dutch, large yellow, 473
,, ,, *white round*, 460
,, early flat red, 467, 473
,, ,, *Paris silver-skinned*, 459
,, ,, *white Nocera*, 459
,, ,, ,, *Valence*, 460
,, Exhibition, 763
,, Fly, 777
,, Geant de Garganus Blanc, 473
,, ,, ,, Rouge, 473
,, *giant Rocca*, 469
,, ,, *Zittau*, 464
,, Globe red, 474
,, ,, white, 475
,, ,, ,, *or Southport white*, 467
,, *Italian blood-red flat*, 469
,, James's Keeping, 465
,, *Keeping Market Favourite*, 465
,, Lescure yellow, 473
,, *Lisbon, white*, 461
,, *Mézières, bright red*, 473
,, Monteragone, 474
,, *Mulhouse*, 473
,, Naseby Mammoth, 474
,, Neapolitan Maggiojola white, 461
,, *New Queen*, 458, 459
,, *Niort pale red*, 466
,, Nürnberger Zwiebel, 474
,, Palle de Château Renard, 472
,, ,, Gros de Bâle, 472
,, *pear-shaped*, 470
,, *Port Sainte-Marie very early rose-coloured*, 465
,, Potato, 471
,, Rouge de Castillon, 472
,, ,, ,, Salon, 474
,, ,, ,, pâle d'Alais, 472
,, ,, ,, de Tournon, 475
,, ,, Monstre, 474
,, Russian, yellow, 474
,, *Spanish, brown Portugal or straw-coloured white*, 462
,, ,, *Giant or Spanish King*, 464
,, ,, *sulphur-coloured white Reading or*, 462
,, *Trebons, yellow*, 463
,, *Tree, Egyptian or Bulb-bearing*, 470
,, *Tripoli flat*, 468
,, ,, ,, or flat red Madeira, 468
,, ,, *Globe or Madeira*, 468
,, ,, *Italian*, 462
,, ,, ,, large white flat, 461
,, two-bladed, 475

Onion, Welsh early white or English, 476
„ „ or Ciboule, 475
„ „ „ „ *common or French Red*, 478
„ „ perennial, 476
„ Wethersfield, 475
Orache, 477
„ dark red, 477
„ green or Lee's Giant, 478
„ white, 477
„ „ *or yellow*, 477
Origanum Majorana, 404
„ vulgare, 403
Oxalis acetosella, 660
„ crenata, 452
„ Deppei, 660
Oyster-plant, Spanish, 478
„ Vegetable, 478

P

Pará Cress, 263
Parsley, 478
„ Champion moss-curled, 481
„ *common or plain*, 480
„ double curled, 481
„ „ *dwarf*, 481
„ *fern-leaved*, 481, 482
„ *Hamburgh early*, 483
„ „ *late*, 482
„ market-garden culture, 480
„ turnip-rooted or Hamburgh large-rooted, 482
Parsnip, hollow-crown, half-long, or Student, 486, 487
„ „ *long smooth*, 485. 486
„ *long*, 485, 486
„ round, 487
Parsnips, 483
„ soil for, 484
„ sowing and th inning, 484
„ storing, 484
Pastinaca sativa, 483
Patience Dock or Garden Patience, 488
„ „ or Herb Patience, 487
Pea, Abundance, 545, 769
„ Admiral, 545
„ „ Dewey, 545
„ Alaska blue, 506
„ Alderman, 545
„ Ambassador, 545
„ *American Wonder*, 526
„ Annonay dwarf very early, 514
„ Autocrat, 769
„ Batt's Wonder, 541
„ Beck's Gem, 541
„ Bedman's Imperial, 542
„ *Bishop's early dwarf*, 510
„ „ *long-pod*, 510, 511
„ Bivort, 537
„ Blanc de Auvergne, 537
„ Blue Beauty, 514
„ „ dwarf English, 542
„ „ Prussian, 542
„ Bountiful, 769
„ *Brittany, very dwarf*, 515
„ Buchsbaum-Erbse, 548
Pea, Cafe, 537
„ Captain Cuttle, 545
„ Celebrity, 545
„ Centenary, 769
„ Champion of England, 545
„ Charlton, 542
„ Chelsea Gem, 526, 768
„ Chick, 243
„ „ white, 244
„ *Clamart early*, 500
„ „ „ dwarf, 512
„ „ *late*, 504
„ Claudit, 542
„ Colossus, 520
„ Connoisseur, 545
„ Continuity, 769
„ *Couturier dwarf*, 515
„ Criterion, 545
„ Crown Prince, 545
„ Daisy, 545
„ *Daniel O'Rourke*, 495, 496
„ De Cerons Hâtif, 538
„ „ Commenchon, 538
„ „ „ Sans Parchemin, 540
„ „ Lorraine, 538
„ „ Madère, 538
„ Dickson's Favourite, 542
„ Dominé, 538
„ Doré, 538
„ Dr. Hogg, 545
„ „ MacLean, 545
„ Duchess of York, 769
„ *Duke of Albany*, 522, 523, 769
„ „ „ York, 545
„ *Dutch dwarf*, 511
„ *dwarf Blue Prussian*, 513
„ Dwarf, 767
„ Earliest of All, 542
„ Early, How to grow, 765
„ *early Emperor*, 497, 542
„ „ „ *or double-blossom frame*, 497
„ „ *frame*, 498, 499
„ „ giant, 769
„ „ Kent, 543
„ „ Maple, 546
„ *early William*, 507
„ *edible-podded forty days'*, 527, 528
„ Emerald Gem, 496
„ English Wonder, 527, 768
„ *Etampes Wonder*, 500, 501
„ Eureka, 769
„ Exonian, 546
„ *Express*, 506
„ Fairbeard's Surprise, 543
„ Fève, 538
„ First and Best or Prince Albert, 494
„ Flack's Imperial, 543
„ *frame, early dwarf*, 514
„ Friolet Sans Parchemin, 540
„ Frühe Heinrich's Zucker-Erbse, 548
„ *G. F. Wilson*, 528
„ Gardener's Delight, 546
„ Géant, 538
„ Gladiator, 513
„ Gladstone, 769
„ Gouvigny, 504
„ *Gradus*, 518

Pea, green Hundred for One, 508
„ Gross Jaune, 538
„ „ Quarantain de Cahors, 538
„ Grosse graue Florentiner Zucker-Erbse, 548
„ Hair's dwarf Mammoth, 546
„ Harbinger, 543
„ Hay's Mammoth, 546
„ Holländische grünbleibende späte Zucker-Erbse, 549
„ *Imperial dwarf blue*, 512
„ Incomparable, 769
„ Jaune d'Or de Blocksberg, 548
„ John Bull, 546
„ Kapuziner-Erbse, 548
„ Kelvedonian, 546
„ Kentish Invicta, 543
„ King Edward VII., 546, 769
„ „ of the Marrows or tall green Mammoth, 547
„ *Laxton's Alpha*, 521
„ „ Evergreen, 543
„ „ *Fillbasket*, 512, 513
„ „ Marvel, 546
„ „ Omega, 546
„ „ Prolific long-pod, 543
„ „ Superlative, 543
„ „ Supplanter, 543
„ „ *Supreme*, 508
„ „ *The Shah*, 518
„ „ Unique, 544
„ le plus Hâtif biflore de Gendbrugge, 538
„ *Leopold II.*, 498, 499
„ Lightning, 495
„ Little Gem, 546
„ *MacLean's Best of All*, 524, 525
„ „ *Blue Peter*, 516
„ *Mammoth late square or Normandy*, 509
„ Mange-tout Demi-nain à Œil Noir, 540
„ Marly, 503
„ Marrow, Giant, or Royal Victoria, 505
„ „ *Knight's dwarf*, 541
„ „ „ *tall*, 520
„ „ late, 766
„ „ Paradise, 544
„ „ Peruvian Black-eye, 544
„ „ Prizetaker, green, 544
„ „ *toll green wrinkled*, 521, 522
„ „ the late, 492
„ „ *Victoria*, 505
„ „ Woodford, 544
„ „ *wrinkled Knight's dwarf green*, 524
„ „ „ *white Eugénie*, 523
„ Masterpiece, 769
„ May Queen, 546
„ „ „ very early, 496
„ *melting Saint-Desirat*, 531, 532
„ Michaux à Œil Noir, 537
„ „ de Nanterre, 538
„ Migron, 539
„ Minimum, 547
„ Multum in Parvo, 547
„ Nain gros Blanc de Bordeaux, 539
„ „ „ Sucré, 539
„ „ vert de St. Michel, 539
Pea, Nain vert Petit, 539
„ Ne Plus Ultra, 547, 767, 769
„ Nelson's Vanguard, 547
„ Norwich Wonder, 547
„ Nutting's No. 1, 547
„ Philadelphia extra early, 544
„ Pioneer, 546, 768
„ *Pride of the Market*, 516, 517, 769
„ *Prince Albert*, 494
„ Prince of Peas, 769
„ Prince of Wales, 769
„ Princess of Wales, 547
„ *purple-podded*, 517, 518
„ Quarantain, 539
„ Quarante-deux, 539
„ Quite content, 769
„ Remontant vert à Demi-Rames, 539
„ „ „ à Rames, 539
„ Ridé très-nain à Bordures, 539
„ Royal dwarf, 544
„ *Ruelle Michaux*, 497, 498
„ Ruhm von Cassel-Erbse, 548
„ Rural New Yorker, 495
„ *Sabre*, 502
„ *Sangster's No.* 1, 496
„ „ „ or improved early Champion, 495
„ Sans Parchemin à Cosse Jaune, 540
„ „ „ à Fleur Rouge, 540
„ „ „ Nain Capucine, 540
„ „ „ „ Gris, 540
„ „ „ „ Hâtif de Hollande, 541
„ „ „ „ Ordinaire, 541
„ „ „ Ridé Nain, 541
„ *Saumur, giant*, 503, 504
„ Scimitar blue, 541
„ „ long-podded improved, 502
„ „ *white*, 501, 502
„ Sehr frühe Buchsbaum de Grâce, 549
„ Sharpe's early Paragon, 547
„ Sherwood, the, 548
„ Shilling's Grotto, 547
„ sowing and gathering, 767
„ Standard, 547
„ Stratagem, 527, 769
„ *Sugar, Debarbieux*, 535, 536
„ „ *early dwarf Brittany*, 534
„ „ *giant*, 533
„ „ „ very large-podded, 531
„ „ large crooked or Scimitar, 529
„ „ „ „ *or Scimitar, pods of*, 531
„ „ *tall butter*, 528, 530
„ „ „ *early long-pod*, 528, 529
„ „ „ green-seeded, 529
„ „ *very dwarf Dutch frame*, 537
„ Tall, 767
„ Telegraph, 548
„ *Telephone, Carter's*, 519
„ *three-podded, tall*, 509
„ Veitch's Perfection, 769
„ Vert Nain du Cap, 540
„ Wem, 548
„ William Hurst, 527
„ William the Conqueror, 544
„ „ „ First, 506, 768
„ *winged*, 549

Pea, Witham Wonder, 527
„ wrinkled, 545
„ „ tall, large white or British Queen, 521
„ „ Yorkshire Hero, 548
„ „ Zwerg-Buchsbaum de Grâce, 549
Pear Gourd, 336
„ „ *ringed*, 336
Peas, 488
„ dwarf varieties, 514, 526
„ English, 541
„ French, 537
„ German, 548
„ half dwarf, 510, 523
„ „ „ and dwarf, 534
„ round or smooth-skinned, 494, 541
„ shelling, 494, 537
„ smooth or green-seeded, 512
„ „ „ round white, 514
„ „ „ „ „ seeded, 510
„ sowing and gathering, 492
„ succession, 491
„ sugar or edible-podded, 527
„ tall and dwarf, 493
„ „ climbing, 494, 518, 527
„ „ round or smooth-seeded, 506
„ white-seeded, 518
„ wrinkled, 518
„ „ green, 524
„ „ „ seeded, 526
„ „ „ „ tall, 521
Pennyroyal, 437
Pepper, American Bonnet or red Tomato Capsicum, 182
Pepper, Cardinal, 176
„ *Cherry*, 178
„ *Chili or Chillies*, 177
„ Chinese giant, 183
„ Coral Gem or Bouquet, 178
„ Cranberry, 179
„ *early dwarf red Spanish*, 183
„ *Golden Dawn*, 180
„ Guinea, or long red Capsicum, 175
„ *improved Bell-nose*, 179
„ *large Bell or Capsicum*, 179
„ *long Cayenne*, 176
„ „ *red Spanish*, 175
„ „ *yellow*, 177
„ *Mexican long black*, 177
„ red, Capsicum or, 173
„ „ *Cluster*, 178
„ „ *Tomato or Squash*, 182
„ *Ruby King*, 180
Peppermint, 437
Pe-Tsai or Chinese Cabbage, 171
Petroselinum sativum, 478
Phaseolus lunatus, 95
„ multiflorus, 90
„ vulgaris, 32
Physalis pubescens, 729
Pimpinella anisum, 2
Pisum sativum, 488
Plantago coronopus, 114
Plantain, Buckshorn, Hartshorn, or Star of the Earth, 115
Portulaca oleracea, 604
Potato, Abdul Hamid, 598
Potato, Abundance, 779
„ Achille Lémon, 585
„ Achilles, 598
„ Adirondack, 596
„ Agnelli's Jewel, 556
„ Alice Fenn, 590
„ Alkohol, 598
„ Ally, 779
„ Alpha, 596
„ *American Wonder*, 574
„ Arran Chief, 771
„ Arran Comrade, 779
„ Artichaut Jaune, 585
„ Aspasie, 585
„ Aurora, 598
„ Beds Hero, 565
„ Belle Augustine, 585
„ „ *de Vincennes*, 585
„ „ *of Fontenay*, 569
„ „ „ *July*, 569, 570
„ Biscuit, 599
„ Bismarck, 599
„ Blackleg of, 780
„ Blaue Riesen, 599
„ Bonne Wilhelmine, 585
„ Bovinia, 590
„ Brandale, 585
„ Breesee's Peerless, 596
„ Britannia, 591
„ British Queen, 771
„ Brownell's Beauty, 596
„ Caillaud, 585
„ Calico, 596
„ *Canada*, 555
„ *Cardinal*, 578, 579
„ Centennial, 596
„ *Chancellor*, 562
„ Chandernagor, 585
„ Chapman, the, 771
„ *Chardon*, 586
„ *Cigarette*, 554
„ Coldstream, or Hogg's Coldstream, 591
„ Comice d'Amiens, 586
„ Compton's Surprise, 597
„ *Cottager's red*, 577
„ Crofter, 771
„ Culture, 769, 770
„ *Czarina*, 582
„ Dalmahoy, 591
„ Dargill early, 779
„ Dawe's Matchless, 591
„ Dean, the, 591
„ De Malte, 587
„ „ *Zélande*, 590
„ Des Cordillières, 586
„ Descroizilles, 586
„ early Cottage, 597
„ „ Duke of York, 770
„ „ Eclipse, 770
„ „ Emperor Napoleon, 591
„ „ Favourite, 770
„ „ Goodrich, 597
„ „ June, 591
„ „ May Queen, 591, 770
„ „ Midlothian, 770
„ „ Ohio, 597
„ „ Puritan, 592

Potato, early Rose, 576
„ „ Sharpe's Express, 771
„ „ „ Victor, 771
„ „ Sir John Llewelyn, 770
„ „ Snowdrop, 770
„ „ Varieties, 770, 771
„ „ *Victor*, 565
„ *Edouard Lefort*, 557
„ Edzell blue, 779
„ Epicure, 770
„ Euphyllos, 599
„ Eureka, 597
„ Excellente Naine, 586
„ Feinste kleine weisse Mandel, 599
„ Fenn's early market, 592
„ Frühe blaue Rosen, 599
„ „ rothe Märkische, 599
„ Garton, the, 592
„ Gelbe Rose, 599
„ Gem, 592
„ General Roberts, 592
„ Giant, Reading, 592
„ „ *unequalled*, 557, 558
„ Gladiator, 771
„ Globus, 599
„ Golden Eagle or Radstock Beauty, 592
„ „ Wonder, 779
„ Grampian, 592
„ Great Scot, 771, 779
„ Grosse jaune deuxième hâtive, 586
„ Hannibal, 599
„ Harbinger, 592
„ Hâtive de Bourbon-Lancy, 586
„ Hermann, 599
„ Igname, 603
„ *Imperator*, 555, 556
„ *Incomparable*, 584
„ *Institut de Beauvais*, 575
„ *Internationale*, 593
„ Jaune, 603
„ „ longue de Hollande, 586
„ „ ronde hâtive de Provence, 587
„ *Jeancé*, 560, 561
„ Joseph Rigault, 573
„ *Juno*, 599, 600
„ Kaiser Kartoffel, 600
„ Karl der Grosse, 600
„ Kerr's pink, 779
„ Kidney, Ash-leaved, pure, 594
„ „ „ purple, 594
„ „ „ *Royal*, 568, 569
„ „ International, 592
„ „ *nettle-leaved or early Bedford*, 570
„ „ *Robertson's Giant*, 577, 578
„ „ Sutton's seedling, 562
„ „ walnut-leaved, 566
„ „ Wonderful red, 595
„ „ Woodstock, 595
„ King Edward, 771
„ King George, 771
„ King of the Earlies, 597
„ „ „ *Flukes*, 593
Potato, Kleopatra, 600
„ Kopsell's frühe weisse Kartoffel, 600
„ Lady Webster, 593
„ *Lapstone or Yorkshire Hero*, 564
„ Late Rose, 597
„ *La Bretonne*, 583
„ Leda, 593
„ Lerchen-Kartoffel, 600
„ Lochar, the, 771
„ Long Keeper, 771
„ Lord of the Isles, 593
„ *M. Eiffel*, 587
„ *Magnum Bonum*, 563, 564
„ Majestic, 779
„ Manhattan, 597
„ Marceau, 587
„ *Marjolin*, 566, 567
„ „ *Tetard*, 568
„ May Queen, 770
„ Midlothian Early, 770
„ milky white, 593
„ *Model*, 593
„ Mona's Pride, 594
„ Montana, 600
„ Naine Hâtive, 587
„ *Négresse*, 581
„ Noisette Sainville, 587
„ Norwegian golden-yellow, 554
„ oblong and long yellow, 561
„ Oblongue de Malabry, 587
„ Ohio Junior, 561
„ Our Boys, 594
„ *Pasteur*, 5, 7, 588
„ Paterson's Victoria, 594
„ Patraque Blanche, 588
„ Peach Blow, 598
„ *Peake's first early*, 583, 584
„ Porter's Excelsior, 594
„ *Pousse-debout*, 578, 579
„ *Prince of Wales*, 571
„ Princesse, 572
„ Professor, 594
„ „ Maerker, 556
„ Quarantaine à Tête Rose, 588
„ *Quarantaine violet-coloured*, 580
„ *Queen of the Polders*, 562, 563
„ „ „ „ Valley, 598
„ *Reading Russet*, 594
„ Rector of Woodstock, 594
„ *red-skinned Flour-ball*, 573
„ *Regent or Shaw*, 553
„ Reine Blanche, 588
„ „ de Mai, 588
„ Rentpayer, 595
„ Richter's Schneerose, 600
„ Rickmaker, 588
„ Riesen Sand-Kartoffel, 600
„ Rognon Rose, 588
„ Rohan, 589
„ Rosalie, 600
„ *Rose de Malaga*, 603
„ Rosée de Cornflans, 589
„ *Rosette*, 589
„ Rothe Unvergleichliche Salat-Kartoffel, 601
„ Rouge ronde de Strasbourg, 589
„ Ruby, 598

Potato, Sächsische Zwiebel - Kartoffel gelbfleischige, 601
„ Sächsische Zwiebel - Kartoffel weissfleischige, 601
„ Saint Germain, 589
„ „ Patrick, 595
„ Sainte Hélène, 589
„ Saucisse Blanche, 589
„ Schoolmaster, 595
„ Scotch Blue, 595
„ *Champion*, 559, 560
„ seed tubers, sprouting, 771, 772
„ *Seguin*, 559
„ Snowdrop, 771, 779
„ Snowflake, 561
„ Spargel-Kartoffel, 601
„ spraying, 771
„ sprouting the seed tubers, 771, 772
„ *Standard*, 595
„ Superb, 595
„ Sweet, 601
„ „ *red*, 603
„ Tanguy, 589
„ Tardive d' Irlande, 589
„ Tonwald perfection, 779
„ Triumph, 598
„ Truffe d' Août, 589
„ Turner's Union, 595
„ Unica, 601
„ Up-to-Date, 554, 771
„ *Van der Veer*, 601
„ variegated-leaved, 577
„ varieties, select, 770
„ Vicar of Laleham, 581
„ Victor, 565
„ Village Blacksmith, 575
„ Violette, 590
„ *Vitelotte*, 579, 580
„ wart disease of, 778
„ White Elephant, 576
„ „ Emperor, 595
„ „ Horn, 563
„ Willard, 598
„ *Windsor Castle*, 771
„ Wormleighton seedling, 596
„ Xavier, 590
„ Yam, 590
„ yellow, early round, 553
„ *Yorkshire hybrid*, 571
Potatoes, 550
„ English varieties, 590
„ French varieties, 585
„ German varieties, 598
„ *Kidney, walnut-leaved, sprouted in a basket*, 567
„ red or pink oblong or long varieties, 575
„ round red, 573
„ violet-coloured, 580
Poterium Sanguisorbal, 116
Primrose, Evening, 307, 308
Puccinia Menthæ, 777
Pumpkin, Boulogne gray, 319
„ *Etampes*, 317
„ *Globe Mammoth*, 317
„ *large bronze-coloured Montlhéry*, 319
„ „ *green*, 318
Pumpkin, large Tours, 333
„ *long yellow*, 316
„ *Nicaise*, 318
„ *Spanish or Gourd*, 318
Pumpkins, 316
Purslane, 604
„ golden, 605
„ *green*, 604, 605
„ *large-leaved*, 605
„ *winter*, 605, 606

Q

Quinoa, white, or Annual Goosefoot, 313

R

Radish, Ardèche field, 621
„ Blanc Demi-long de la Meurthe et de la Meuse, 630
„ Californian, or Mammoth white, 629
„ De Mahon, 630
„ *deep scarlet intermediate*, 615
„ *forcing bright red leafless*, 612, 613
„ „ long white Pearl, 620
„ *French Breakfast*, 615
„ Früher Zwei-Monat Rettig, 630
„ *Globe early deep scarlet*, 612
„ Gournay large purple, 627
„ Gris et Oblong, 630
„ Gros d'Hiver de Ham, 630
„ *Horse*, 342, 343
„ *long Chartier*, 619
„ „ Normandy or Marsh, 620
„ „ purple, 619
„ „ *scarlet or salmon-coloured*, 617, 618
„ „ white Naples, 620
„ „ „ *Vienna*, 620
„ *olive-shaped deep scarlet white-tipped*, 616
„ „ deep scarlet white-
„ „ tipped forcing, 616
„ „ early deep scarlet, 616
„ „ early deep scarlet, very, 616
„ „ forcing white-tipped, 615
„ „ or intermediate, 614
„ „ purple, 617
„ „ *scarlet*, 614
„ „ *white*, 617
„ „ forcing, 617
„ Rat-tailed, 631
„ Rond rouge foncé, 630
„ *summer black long*, 624
„ *Triumph*, 613
„ *Turnip, deep scarlet Pamir*, 629
„ „ early purple, 614
„ „ „ *scarlet white-tipped*, 611
„ „ „ *scarlet white-tipped, forcing*, 611
„ „ *forcing deep scarlet*, 612
„ „ „ *deep scarlet, white tipped*, 612
„ „ „ *scarlet*, 611

Radish, Turnip, gray summer, 622
,, ,, *scarlet*, 610
,, ,, ,, early, 610
,, ,, *Stuttgart early giant white*, 622
,, ,, *summer golden-yellow*, 623
,, ,, ,, *large white*, 622
,, ,, ,, *small black*, 624
,, ,, *summer white Strasbourg or white Hospital*, 624
,, ,, *summer yellow*, 623
,, ,, very early yellow, 614
,, ,, white, 613
,, ,, ,, Chinese or Celestial, 630
,, ,, ,, *small early*, 613, 614
,, ,, white tipped brightest scarlet or cardinal, 619
,, ,, *white tipped cardinal*, 619
,, ,, ,, purple, 614
,, ,, *winter black Spanish*, 625
,, ,, ,, *Chinese scarlet*, 628
,, ,, ,, crooked or Mans Corkscrew, 621
,, *winter, Laon long gray*, 626, 627
,, ,, *large purple*, 625, 626
,, ,, ,, *white Russian*, 627, 628
,, ,, ,, ,, *Spanish*, 627
,, winter long black Spanish, 626
,, *Wood, early frame*, 618
Radishes, 606
,, culture for market, 609
,, long, 617
,, other varieties of, 630
,, round or turnip-rooted, 610
,, small or forcing, 610
,, special beds for, 608
,, summer and autumn, 621
,, ,, ,, winter, 608
,, winter, 625
Rampion, 631
Raphanus caudatus, 631
,, *sativus*, 606
Rheum, 632
,, *hybridum*, 632
Rhubarb, 632
,, Daw's Champion, 773
,, Hawkes' Champagne, 636, 773
,, hybrid Florentine, 636
,, market-garden culture, 635
,, Mitchell's Royal Albert, 636
,, Myatt's Linnæus, 637
,, ,, Victoria, 637
,, Scott's Monarch, 637
,, *stalks of*, 633
,, Tobolsk, early red, 636
Rocambole, 312
Rocket Salad, 637, 638
,, Turkish, 638
Rosemary, 638, 639
Rosmarinus officinalis, 638
Rotation of Crops, 773
Rue, 639
Rumex, 657
,, acetosa, 657
,, arifolius, 659
,, montanus, 659
Rumex Patientia, 487
,, scutatus, 659
Rush Nut, or Chufa, 640
Ruta graveolens, 639

S

Saffron-plant, 640, 641
Sage, 641
Salsafy, 478
,, Mammoth Sandwich Islands, 642
,, *or Vegetable Oyster*, 642
Salvia officinalis, 641
,, Sclarea, 250
Samphire, 643
Satureia hortensis, 644
,, montana, 644
Savory, summer, 644
,, *winter*, 644, 645
Savoy Cabbage, Aire, 146
,, ,, ,, *extra fine curled*, 147
,, ,, *Cape or large late green*, 147
,, ,, *Drumhead, large hardy winter*, 149
,, ,, ,, *large Vertus*, 148, 149
,, ,, dwarf early green curled, 145
,, ,, ,, Roblet, 145, 146
,, ,, *early flat green curled*, 146
,, ,, *large Aubervilliers*, 148
,, ,, *Limay*, 149
,, ,, *long-headed*, 148
,, ,, *Norwegian*, 150
,, ,, *Paris very early*, 145
,, ,, *small Belleville*, 150
,, ,, *St. John's*, 144
,, ,, *Tours*, 146
,, ,, *Ulm or early green curled*, 144
,, ,, *Victoria*, 147
,, ,, *yellow curled or golden*, 147
Scandix cerefolium, 240
Scolymus hispanicus, 704
Scorzonera, French, 646
,, *hispanica*, 645
,, picroides, 646
Scurvy-grass, 646
Sea-kale, 647
,, market-garden culture, 651
,, on the coast, 650
Shallot, 654
,, *Jersey*, 655
,, ,, or false, 655
,, ,, *true*, 654
Sinapis alba, 446
Sium Sisarum, 656
Skirret, 656
Solanum Melongena, 289
,, nigrum, 450
,, ovigerum, 294
,, tuberosum, 550
Sorrel, 657
,, common, 657
,, *French broad-leaved*, 658
,, lettuce-leaved, 659

Sorrel, Maiden, 659
„ O. Blonde de Sarcelles, 659
„ round-leaved, 659
„ *white large-leaved*, 658
„ wood, 660
„ „ Deppe's, 660
Soy Bean, 661
„ „ common yellow, 661
„ „ *Etampes yellow*, 662
„ „ Podolian, 662
„ „ very early brown-seeded, 662
Spearmint, Mint or, 436
Spinach, 662
„ *Catillon long-standing*, 670
„ common, 665
„ culture for market, 664
„ *Dutch, large*, 666
„ „ round-seeded, round-leaved, 666
„ *Flanders round-seeded*, 667
„ *late-standing*, 669
„ lettuce-leaved, 668
„ long-standing or long-seeding, 669
„ *New Zealand*, 670
„ round-seeded, 666
„ *Savoy-leaved or curled*, 669
„ summer, 663
„ „ *Victoria dark green*, 668, 669
„ *Viroflay giant*, 666
„ *winter or large prickly*, 665
Spinacia glabra, 666
„ oleracea, 662
„ spinosa, 665
Squash, bush, Geneva, 332
„ „ Nice, 332
„ *chestnut*, 330
„ *early bush or summer crook-necked*, 332, 333
„ *Hubbard*, 321, 322
„ „ golden, 320
„ *large warted Portugal*, 323
„ *Maple, Carpet-bag Gourd or*, 326
„ Marble-head, 322
„ Marrow, Boston, 321
„ „ *Ohio or Californian*, 322
„ „ *warted*, 320
„ *musk, Mirepoix*, 327
„ *Neapolitan or early carpet-bag*, 327
„ *olive*, 322
„ *Patagonian*, 330, 331
„ *Valencia*, 325
„ *Valparaiso*, 320, 321
Stachys tuberifera, 671
Strawberry, Admiral Dundas, 697
„ Albany, 680
„ *Alpine Belle de Meaux*, 674, 675
„ „ *Berger*, 676
„ „ *bush, red*, 675
„ „ Janus, 675
„ „ *red*, 673, 674
„ „ „ Duru, 675
„ „ *white*, 674
„ Barnes's white, 681
„ Belle Bordelaise, 677
„ „ *de Cours*, 681
„ „ „ Paris, 697
Strawberry, Black Prince, 697
„ *British Queen*, 681
„ *Carolina superba*, 682
„ Centenary, 682, 683
„ Chili, 678
„ Commander, 697
„ *common Hautbois or Musky*, 677
„ Comte de Paris, 697
„ Crescent seedling, 683
„ *Docteur Morère*, 683
„ „ *Veillard*, 684
„ Dr. Hogg, 697
„ „ *Nicaise*, 697, 698
„ Duke of Edinburgh, 698
„ „ „ *Malakoff*, 684
„ „ „ Montrose, 698
„ *Edouard Lefort*, 684, 685
„ *Eleanor*, 698
„ Elisa, 698
„ *Elton improved*, 698
„ Fontenay early small, 673
„ *General Chanzy*, 685, 686
„ *Gloire de Zuidwyck*, 699
„ Hautbois, 677
„ Hohenzollern, 699
„ *Jeanne d'Arc*, 702
„ *Jucunda*, 685, 686
„ *June Peach*, 690, 691
„ Kaiser Nikolas von Russland, 699
„ *Keen's seedling*, 699
„ *King of the Earlies*, 691, 692
„ Koenig Albert, 699
„ *La Chalonnaise*, 699
„ „ *Constante*, 685, 686
„ „ Grosse Sucrée, 699
„ „ *Productive*, 703
„ Latest-of-All, 699
„ *Laxton's Noble*, 690
„ Leader, 700
„ *Le Czar*, 686, 687
„ *Louis Gauthier*, 687
„ „ Vilmorin, 688
„ *Lucas*, 688
„ *Madame Meslé*, 688, 689
„ *Marguerite*, 689
„ *May Queen*, 689, 690
„ Montreuil, 673
„ *Napoleon II.*, 690
„ Perpetual Meudonnaise, 676
„ Petit Pierre, 700
„ Pine-Apple, 679
„ President Carnot, 690
„ *Princess Dogmar*, 700
„ „ *Royale*, 691
„ *Richard Gilbert*, 692
„ *Royal Sovereign*, 693
„ *Sabreur*, 692, 693
„ *Saint-Antoine de Padoue*, 702
„ scarlet Virginia, 678
„ Schöne Anhalterin, 676
„ *Sensation*, 693, 694
„ Sharpless, 694
„ Sir Chas. Napier, 700
„ „ Harry, 700
„ „ *Joseph Paxton*, 694
„ *Souvenir de Bossuet*, 695

Strawberry, St. Joseph, 701
,, *The Captain*, 697
,, *Van Guard*, 680, 681
,, *Vicomtesse Héricart de Thury*, 696
,, *Victoria*, 696
,, wild or wood, 672
,, ,, short-runnered, 678
,, *Wonderful or Myatt's Prolific*, 696
Strawberries, 671
,, hybrid, 679
Succory or Chicory, 244
Sunroot, 758
Swede, Bredstone, the, 167
,, or Turnip, Budlong's white improved, 167
,, white, 167
Swiss Chard, Leal Beet or, 347
,, ,, or Seakale Beet, 348
,, ,, ,, ,, ,, *silvery*, 349
,, ,, red-stalked, or Chilian Beet, 350
,, ,, *white curled*, 349
Synchytrium endobioticum, 778

T

Tanacetum vulgare, 704
Tansy, 704
Tare, One-flowered, or Auvergne Lentil, 360
Tarragon, 705
Tetragonia expansa, 670
Thistle, golden, 478, 704, 705
Thyme, common, 706, 707
Thymus vulgaris, 707
Tomato, apple-shaped, purple or Acme, 725
,, ,, *red*, 726
,, ,, ,, or Hathaway's Excelsior, 723
,, *Atlantic Prize*, 718
,, Beauty, 728
,, Belle de Leuville, 728
,, ,, *of Massey*, 716
,, Blenheim, Orange, 728
,, *Champion*, 719
,, ,, purple, 719
,, ,, scarlet, 719
,, Chemin, early, 718
,, ,, *red, early*, 720
,, *Cherry*, 727, 728
,, Earliana, 728
,, *early large red or Powell's early*, 715
,, ,, Mayflower, 728
,, ,, Optimus, 728
,, Golden Queen, 723
,, ,, Trophy, 728
,, Honor Bright, 728
,, Jaune Petite, 728
,, *King Humbert*, 725, 727
,, large red, 715
,, ,, yellow, 728
,, *Laxton's Open-air*, 717, 718
,, *Marvel of the Market*, 719
,, Mikado, purple, 722
Tomato, Mikado, scarlet, 722, 723
,, or Love Apple, 707
,, Peach, 729
,, *Pear-shaped or Fig*, 726, 727
,, ,, yellow, 729
,, *Perfection*, 720, 721
,, *Red Currant*, 727
,, ,, *early dwarf*, 715
,, *round yellow*, 725
,, *scarlet Ponderosa*, 722, 724
,, ,, Turk's Cap, 729
,, Stone, 729
,, Strawberry or small white Mexican or Barbadoes Gooseberry, 729
,, tree, 716
,, ,, *upright large red*, 716
,, *Trophy*, 721, 722
Tomatoes, black spot in, 780
,, ,, stripe of, 781
,, defoliating, 775
,, disease and its prevention, 713, 780, 781
,, for winter, 774
,, light house for, 710
,, market-garden culture, 714
,, scalding of, 781
,, sleeping disease of, 781
,, under glass, 710
,, without manure, 711
Tragopogon porrifolius, 642
Trapa natans, 753
Tropæolum majus, 448
,, minus, 449
,, *tuberosum*, 449
Turnip, 730
,, Auvergne early red-top flat, 748
,, ,, *late*, 748
,, *Blackstone Chirk Castle*, 743, 744
,, Briollay, long, 749
,, *Dutch garden, early white flat*, 740
,, ,, yellow, 744, 745
,, early red-top flat garden, 741
,, ,, *stone or stubble*, 746
,, *Epernay white round*, 743
,, *Finland, yellow*, 745, 746
,, Fly, 782
,, *forcing half-long white*, 734
,, *Freneuse*, 736
,, Globe purple-top white, 743
,, ,, *strap-leaved white*, 747
,, *Jersey Lily or early Six-weeks'*, 742
,, *Kashmir, scarlet*, 743
,, *Limousin*, 749
,, *long black*, 737
,, ,, *white Meaux*, 745
,, ,, ,, *yellow*, 738
,, *Maltese yellow or golden*, 745
,, *Milan white*, 742
,, *Montmagny yellow flat purple-top*, 744
,, *Morigny gray*, 737
,, *Norfolk white or Cornish white*, 747
,, or Swede, Budlong's white improved, 167
,, *Orange Jelly*, 746
,, *strap-leaved Milan purple-top*, 741

Turnip, *strap-leaved red-top American Stone*, 741
„ „ *white American stone*, 740
„ *Swedish, early flat yellow*, 170
„ „ „ purple-top, 167
„ „ „ *smooth*, 168
„ „ „ „ short-leaved, 167
„ „ „ *strap-leaved*, 168
„ „ *oval*, 169
„ „ „ Monarch, Tankard, or Elephant, 170
„ „ turnip-rooted cabbage or, 166
„ „ *white*, 167
„ „ *yellow, purple-top*, 168
„ *Tankard, long green*, 739
„ „ „ *red*, 739
„ *Teltow*, 736
„ *Vertus Croissy or round-leaved*, 742
„ „ *half-long red-top*, 735
„ „ *or Jersey half-long white*, 735
„ „ white carrot-shaped or pointed, 734
„ Viarmes red-top, 736
„ *white carrot-shaped*, 735
„ *winter hardy white*, 736, 737
„ yellow-fleshed, 775
Turnips, culture in market-gardens, 733
„ diseases, 782
„ long varieties, 734
„ round or flat varieties, 740
„ soil for, 733

U

Unicorn-plant, 752

V

Valerian, African, 753
Valerianella olitoria, 251
Vegetable Diseases, 776, etc.
„ *Marrow*, 329
„ „ *Italian*, 331, 332
„ „ long yellow, 330
Vetch, Chickling, 243

W

Water Chestnut, 753, 754
„ „ *fruit of*, 754
„ „ *Cress*, 259
„ *improved brown-leaved*, 261, 262
„ Melon, 432
„ „ *black-seeded*, 434
„ „ Citron, 435
„ „ Cuban Queen, 435
„ „ dark icing, 436
„ „ *early Rodosto*, 433
„ „ „ „ very early, 433
„ „ „ *Russian*, 433
„ „ Excelsior, 435
„ „ Florida Favourite, 435
„ „ Gipsy, 435
„ „ Ice Cream or Peerless, 436
„ „ icing, Ice-rind, or strawberry, 436
„ „ Mountain or Mountain Sweet, 436
„ „ Mountain Sprout, 436
„ „ orange, 436
„ „ Rattlesnake, 436
„ „ *red-seeded*, 435
„ „ „ or red-fleshed, 434
„ „ round light icing, Ice-rind, strawberry, 436
„ „ *Seikon*, 434
„ „ „ very early, 434
„ „ Spanish, 435
„ „ Sweetheart, 436
Winter Greens, purple or tall purple Kale, 160
Witloof, or large Brussels Chicory, 247
Wood Sorrel, 660
„ „ Deppe's, 660
Woodruff, 754
Wormwood, 754, 755

Y

Yam, Chinese, 755, 756

Z

Zea Maïs, 400

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